

UTP Co-Curriculum Unit Web Based System (CCWBS)

by

Nadialiyana binti Yahuza

8190

**Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Hons)
(Business Information System)**

JULY 2009

**Universiti Teknologi PETRONAS
Bandar Seri Iskandar
31750 Tronoh
Perak Darul Ridzuan**

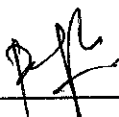
CERTIFICATION OF APPROVAL
UTP Co-Curriculum Unit Web Based System (CCWBS)

by

Nadialiyana binti Yahuza
8190

A project dissertation submitted to the
Business Information System Programme
Universiti Teknologi PETRONAS
in partial fulfillment of the requirements for the
BACHELOR OF TECHNOLOGY (Hons)
(BUSINESS INFORMATION SYSTEM)

Approved by,

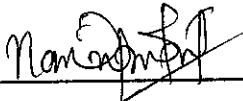


(Ms Rozana Kasbon)

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK
JULY 2009

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



(NADIALIYANA BINTI YAHUZA)

ABSTRACT

Co-Curriculum Unit of Universiti Teknologi PETRONAS (UTP) is responsible in managing all activities related to Sports, Art and Cultural and also Credited Co-Curriculum courses. Those are the three sub departments in Co-Curriculum Unit itself. UTP Co-Curriculum Unit currently doing their business process manually. Because of limitation in the number of staffs, multiple processes in three different sub departments and also handling many events in UTP; it is time consuming when they need to handle those business processes manually. The main objective of this project is to develop and implement a prototype that automates the UTP Co-Curriculum Unit business processes. This prototype implement a web based technologies which will help Co-Curriculum Unit to improve their business process in conducting every activity, which increase effectiveness and efficiency. This new system called, 'UTP Co-Curriculum Unit Web Based System' (CCWBS). The scope of study for this project includes two different areas which are 1) Study of UTP Co-Curriculum Unit business processes and 2) develop a system prototype. Phased Development-based methodology is used to develop CCWBS. The literature review focuses on study of journals, and previous studies that related to the topic of the research project. It is focusing on the Co-Curriculum issues, followed by summarized review on journals related to web based system, system development life cycle, business process models and etc. The results and discussion also be included in the report. It focuses on the Requirement Gathering and Requirement Analysis technique. System modeling also is included in the report which consists of functional, structural and behavioral model. The developed CCWBS can help UTP Co-Curriculum Unit on handling their business process efficiently and it will become one stop center for UTP Co-Curriculum Unit to be more present in the eyes of UTP society.

ACKNOWLEDGEMENT

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the name of Allah, The Beneficent, The Merciful.

First and foremost I would like to express appreciation and gratefulness to Allah, for His blessing and giving the golden opportunity to complete this Final Year Project.

I also would like to express my sincere gratitude to Ms Aliza Sarlan and Ms Rozana Kasbon, for their valuable guidance, constructive comments and support as my supervisors. The encouragement throughout these 2 semesters has been very important for the successful completion of my Final Year Project.

To seize this opportunity, deepest appreciation to UTP Co-Curriculum Unit staff especially Ms Hellina Ahmad Kamil for being my FYP collaborator. Thanks for allocating your time for interview sessions and believed in me to produce UTP Co-Curriculum Unit Web Based System (CCWBS). UTP Co-Curriculum Unit has contributed a lot along the process in accomplishing CCWBS.

Last but not least, the appreciation goes to my parents and mates, for their constant supports.

TABLE OF CONTENT

CERTIFICATION OF APPROVAL	.	.	.	.	.	i
CERTIFICATION OF ORIGINATLITY	.	.	.	.	.	ii
ABSTRACT	.	.	.	.	.	iii
ACKNOWLEDGEMENT	.	.	.	.	.	v
CHAPTER 1:	INTRODUCTION					
	1.1 Background of Study	.	.	.	.	1
	1.2 Problem Identification	.	.	.	.	2
	1.3 Significant of the project	.	.	.	.	4
	1.4 Objective	.	.	.	.	4
	1.5 Scope of Study	.	.	.	.	5
CHAPTER 2:	LITERATURE REVIEW					
	2.1 Co-Curriculum Goals	.	.	.	.	6
	2.2 Benefits of Co-Curriculum for Undergrads	.	.	.	.	7
	2.3 Powerful Co-Curriculum	.	.	.	.	7
	2.4 Web Based System	.	.	.	.	8
	2.5 Business Process Improvement	.	.	.	.	8
	2.6 Business Process	.	.	.	.	9
	2.7 Business Process Model	.	.	.	.	10
	2.8 Business Process Modeling Notation (BPMN)	.	.	.	.	11
CHAPTER 3:	METHODOLOGY					
	3.1 Phased Development Based Technology	.	.	.	.	12
	3.2 Planning	.	.	.	.	13
	3.3 Analysis					
	3.3.1 Analysis Strategy	.	.	.	.	15
	3.3.2 Requirement Gathering	.	.	.	.	15
	3.4 Design	.	.	.	.	15
	3.5 Implementation	.	.	.	.	15

CHAPTER 4:	RESULTS AND DISCUSSIONS	
	4.1 Requirement Gathering Result	
	4.1.1 Document analysis . . .	18
	4.1.2 Observation . . .	19
	4.1.3 Interview . . .	19
	4.2 Requirement Analysis	
	4.2.1 Duration analysis . . .	21
	4.3 Requirement Definition	
	4.3.1 Functional Requirement . . .	23
	4.3.2 Non-Functional Requirement . . .	24
	4.4 System Modeling	
	4.4.1 Activity Diagram . . .	24
	4.4.2 Use Case Diagram . . .	27
	4.4.3 Class Diagram . . .	29
	4.4.4 Sequence Diagram . . .	30
	4.5 System Overview	
	4.5.1 CCWBS Pages Flows . . .	30
	4.5.2 CCWBS Pages Plans . . .	31
	4.6 System Design	
	4.6.1 User Interface Design. . .	33
	4.7 Construction System Prototype	
	4.7.1 Web Based System . . .	35
	4.7.2 Administrator Page . . .	35
	4.7.3 Student Page . . .	41
	4.8 Testing	
	4.7.1 System Limitations . . .	46
CHAPTER 5:	CONCLUSION AND RECOMMENDATION	47
REFERENCES	. . . . .	48

APPENDICES	A: FYP 1 GANTT CHART	49
	B: TECHNICAL FEASIBILITY REPORT.	50
	C: SPORT’S EQUIPMENT REQUISITION FORM	51
	D: FACILITIES REQUISITION FORM	52
	E: SPORT’S FACILITIES	53
	F: SPORTS EQUIPMENT LIST	54
	G: USE CASE DESCRIPTIONS	58
	H: SEQUENCE DIAGRAM	62

LIST OF FIGURES

Figure 2.1: Business Process Model	10
Figure 3.1: Phase Development-Based Methodology	13
Figure 4.1: As-is Activity Diagram	25
Figure 4.2: To-be Activity Diagram	26
Figure 4.3: Use Case Diagram	27
Figure 4.4: Class Diagram	29
Figure 4.5: CCWBS pages flow chart (Administrator)	30
Figure 4.6: CCWBS Windows Navigation Diagram	32
Figure 4.7: CCWBS Graphical User Interface (Landing Page)	34
Figure 4.8: CCWBS Administrator Register Page	36
Figure 4.9: CCWBS Administrator Homepage	38
Figure 4.10: CCWBS Administrator About Us page.	39
Figure 4.11: CCWBS Administrator Sports page (View Facilities Details)	40
Figure 4.12: CCWBS Student Homepage (Art&Cultural announcement details)	42
Figure 4.13: CCWBS Student Sports page (Facilities Requisition Form)	43

LIST OF TABLES

Table 3.1: FYP 1 Project Milestone	14
Table 3.2: FYP 2 Project Milestone	14
Table 3.3: System Technical Specification	15
Table 4.1: Interview report – 1st Interview Session	20
Table 4.2: Interview report – 2nd Interview Session	20
Table 4.3: Interview report – 3rd Interview Session	21
Table 4.4: UTP Co-Curriculum Unit Functional Requirements	23
Table 4.5: UTP Co-Curriculum Unit Non-Functional Requirements	24
Table 4.6: UTP CCWBS User Profile	28
Table 4.7: CCWBS Pages	31
Table 4.8: User Interface Principles	33
Table 4.9: System Testing	45

CHAPTER 1

INTRODUCTION

1.1 Background of study

UTP Co-Curriculum Unit is one of the units under Student Support Services Department that plays important roles to Universiti Teknologi Petronas (UTP) society. The roles of this unit are handling any activities and events related to Sports, Art and Cultural and also Credited Co-Curriculum courses. In addition, Co-Curriculum Unit staff are actually been divided into these three sub department. UTP Co-Curriculum Unit currently doing their business processes manually. Because of limitation in the number of staff, multiple processes in three different sub departments and also responsible in handling various type of events in UTP; it is time consuming especially for the facilities booking process, equipments borrowing process, event recruitment process and the most important issue is the information sharing problem.

From all sub departments, the most critical issue is the information sharing problem. Example, the sub departments may organize different events such as **FESCO** (Festival of Colors of the World) in Art and Cultural department and **Outdoor Carnival** in Sport department. For these events, the Co-Curriculum Unit staff are facing problem to promote the events and also to publish the announcement of recruiting the committee among student. For Credited Co-Curriculum courses sub department, there will be an issue of posting the updated news for particular courses. Example, if there are immediate changes in class time or venue, it is so difficult to ensure that all students can get the information. The important notices such as timetable, syllabus, rules and regulation, new implementation for every subject is only available at Multi Purpose Hall and Co-Curriculum Unit notice boards in Block B. This is not an efficient way of posting the important notices. They have been

using E-Learning as medium to display certain notices but it is not efficient because not all students are aware of the important notices appears in the left column in E-Learning web site. The staff also experience inefficiency when they need to inform the E-learning administrator every time they want to upload the notices. These entire situations happen because Co-Curriculum Unit is facing information sharing problem.

With this research project, the UTP Co-Curriculum Unit Web Based System (CCWBS) been developed to automate and improve Co-Curriculum Unit business processes, increasing its efficiency and effectiveness. Concurrently, CCWBS will be a one stop center for UTP Society to be more alert about updated information of Co-Curriculum Unit activities. Other than that, staff in Co-Curriculum Unit actually has planned to develop a web site for their unit but they was thinking on how and who to maintain the website later on. However, this proves that they realized the needs of this kind of web based system for Co-Curriculum Unit. As for this, the developed CCWBS will be able to help the Co-Curriculum Unit to be more present in front of the UTP society.

1.2 Problem Identification

The major problem of Co-Curriculum Unit business processes is lack of information displayed to UTP society regarding Co-Curriculum updated news and events and also the whole idea related to Co-Curriculum Unit roles and processes. Below are the problems that arise in UTP Co-Curriculum Unit business processes:

1.2.1 Manual Facilities Booking Process

One of the Co-Curriculum Unit responsibilities is to monitor the usage of the UTP Sports facilities (i.e. tennis court, football field, swimming pool and etc). The UTP society needs to book those facilities first before using them because of the limited number of facilities and large number of students. It has been done by first come first serve basis. As the UTP Co-Curriculum Unit office is far from UTP student's hostel, it is not convenient when students need to come over to Co-Curriculum Unit office in order to fill in the form and book the facilities.

1.2.2 Manual Sport's Equipment Borrowing Process

As there are many types of sports plays by UTP students such as football, hockey, basketball, netball, badminton, tennis, ping pong and squash, UTP Co-Curriculum Unit has all the equipments such as the balls, hockey stick, net, racket and jersey so that it can be used and be borrowed by UTP Society especially the UTP sports team and for events purposes. All the equipments are owned by UTP and it is important that the equipments being use and return in the same condition. The problem is that, the sport's equipment borrowing process is done manually in order to keep track all related information (i.e. date, quantity etc). They use a form that need to be filled in by parties that want to borrow any of the equipment that available in the store.

1.2.3 Manual Information Dissemination on Credited Co-Curriculum courses.

As it is compulsory for all UTP students to take two co-curriculum subjects to graduate, it is important for them to have detail information regarding the Credited Co-Curriculum courses. The current situation is the students will only be explained regarding the courses during the orientation week, 'Minggu Aluan Mesra'. The important notices such as timetable, syllabus, rules and regulation, new implementation for every subject is only available at Multi Purpose Hall and Co-Curriculum notice boards.

1.2.4 Manual Notification for Sports and Art and Cultural Event Recruitment

There are many types of events handled by Sports and Art and Cultural sub department. The major problem that the staffs are facing now is to promote the events and recruit students for activities such as choir group. The current process is done manually by having notices at Co-Curriculum Unit notice board. By this, not all students will get the information. Same goes to big events such as FESCO (Festival of Colors of the World) and Outdoor Carnival (OC). It's difficult to advertise about the recruitment process for FESCO and OC student's committee.

1.2.5 Unavailable Information of UTP Co-Curriculum Achievement

UTP has been participating in many kinds of Sport events since UTP has been established. As part of UTP societies, it's best for us to know the history of UTP Achievement in Sports activities and events. There is no one stop center to tell or display all information regarding the history of UTP Sports achievement.

1.3 Significance of the Project

This research project produced an improved business process for UTP Co-Curriculum Unit in conducting the three sub departments which are Sport and Recreation, Arts and Cultural and also the Credited Co-Curriculum program by implementing World Wide Web technologies. The UTP CCWBS will assist UTP Co-Curriculum Unit by increasing the efficiency of handling the business processes. At the same time, the UTP CCWBS is expected to become one stop center for UTP Co-Curriculum Unit to be more present in the eyes of UTP society.

1.4 Objective

The objectives of this research project are:

- To analyze the UTP Co-Curriculum Unit business processes.
- To develop a prototype that automates the business processes.

1.5 Scope of Study

In order to complete this project, there are several scopes of study that involved. The major scopes are as follows:

1.5.1 Study of UTP Co-Curriculum Unit Business Processes.

The author studied about the UTP Co-Curriculum business processes in conducting those three sub departments (Sports, Art and Cultural, Credited Co-Curriculum Courses) in order to have a strong background in developing the UTP CCWBS that consists of automated system for several business processes.

1.5.2 Develop a System Prototype

Based on the study of the UTP Co-Curriculum Unit business processes, a prototype system called 'UTP Co-Curriculum Unit Web Based System' (UTP CCWBS) is developed.

CHAPTER 2

LITERATURE REVIEW

2.1 Co-Curriculum Goals

As it is compulsory for UTP students to take at least two subjects under credited Co-Curriculum to graduate, shows how UTP comply with the objective of the Ministry of Education to ensure that Malaysia can produce a well rounded students who are balance in both of Curriculum and Co-Curriculum.

As for Beloit College, The Student Affairs mission embraces below aims through the following co-curricular goals:

- promoting student learning, growth and development through residential and Co-Curricular experiences of the highest quality;
- supporting and integrating students out-of class learning with the Colleges academic program;
- seeking to educate the whole person;
- seeking to help students develop the skills, knowledge and maturity necessary to be good citizens in a diverse and ever-changing global community and to live productive and fulfilling lives;
- Being consistent with the Colleges mission and values.

To achieve these goals the co-curriculum is modeled on developmental theories which suggest that students move from a rather insular view of themselves and the world. As a result of their experiences and learning which occurs both in-and out-of the classroom they develop into individuals with a more defined identity and pluralistic view of the world. Students will experience growth in their intellectual, interpersonal, and physical skills through their achievements and interactions with the curriculum and co-curriculum (William J. Flanagan, 2006).

2.2 Benefits of Co-Curriculum for Undergraduates

The Co-Curriculum courses and activities that been involved by undergraduates are not only to fulfill the courses itself or just for fun, but this issue has been thought seriously by The Higher Education Ministry. During the portfolio of Higher Education Ministry being hold by Datuk Mustapa Mohamed, the ministry was considering of introducing a grading system for Undergraduates who are active in co-curriculum activities. That grading system aimed at recognizing the student's involvement in activities and programs at national or international level to boost their universities image, assessing the personality of an individual and the important aspect in career development when the graduates enters the job market. This is important to active undergraduates when they are in the university and to facilitate employers to make their choice when they attend interview and the grading system would also spur university students to participate in activities and programs to acquire skills in various disciplines. A student is required to be active in co-curricular activities to be eligible to enter a public university; this is an extension of those criteria to prepare the student for the job market (BERNAMA, 2008).

2.3 Powerful Co-Curriculum

In the case of curriculum design, some principles need to be developed. As for Willamette University, the following are six principles which guided their review of the co-curriculum (Willamette University, 2001):

- To achieve high quality liberal arts education, the co-curriculum must be structured by a rich and comprehensive design focused on supporting and complementing the curriculum and its goals.
- In this design we need to strike an appropriate balance between three pairs of values that are at once in tension with each other and at the same time indispensable for student development in a liberal arts setting which for Continuity and change, Support and challenge and Community/common experience and individual choice.

- We need to have a considerable proportion of juniors and seniors living on campus.
- We should cultivate the skills of self-governance and the values of participation and community service in a wide range of co-curricular settings.
- The co-curriculum should provide numerous opportunities for spontaneity and diverse types of fun and recreation.
- In a variety of ways we need to strengthen students' bonds to Willamette.

Same as UTP, Co-Curricular activities plays an important roles in producing well rounded students. It shows how UTP Co-Curriculum Unit responsible in formulates the goals.

2.4 Web Based System

A web-based system is one in which the primary user interface is provided through web pages which are accessed on a standard web browser. A web based system provides high in efficiency in handling business processes. Benefits of using a web based system are it provides more access, flexibility, interoperability, wider area integration and not more cost (Steve Tom, 2002). In this research project, it applies web based technology that consists of business process automation. The current business process and problems been identified and the automation system for certain processes been proposed for UTP Co-Curriculum business process improvement. The proposed system will be a 'to-be' system prototype.

2.5 Business Process Improvement

There are seven steps to operational excellence in improving the business process. The seven major steps are (Rob Berg, 2006):

1. Create a process master.

List each organizational process, and the suppliers, inputs, major process activities, outputs, customers and key metrics for each.

2. Prioritize processes.

Using the organization's strategic success criteria as weighting factors, determine how each process impacts their fulfillment and rank accordingly.

3. Assemble the team.

Include an executive sponsor, the process supplier, the process owner, process participants and the process customer.

4. Create process models.

Detail the flow of activities in the process and identify departments, resources, decision points and narratives where indicated for clarification.

5. Perform root cause analysis.

Using brainstorming, affinity diagramming, cause-and-effect diagrams, check sheets and Pareto analysis, identify the possible root causes of the problem.

6. Address top causes.

Have the team charter projects, as appropriate, to address the causes identified as most problematic during Pareto analysis.

7. Re-measure.

To validate the effectiveness of the solutions implemented as a result of the successful completion of the chartered projects, re-measure using check sheets.

This concept can be applied for UTP CCWBS. Even though UTP Co-Curriculum Unit is not business related organization, but the 7 steps shown above can be used as UTP Co-Curriculum Unit business process improvement techniques.

2.6 Business Process

A business process consists of a group of business activities undertaken by one or more organizations in pursuit of some particular goal. It usually depends upon various business functions for support, e.g. personnel, accounting, inventory, and interacts with other business process activities carried by the same or other organizations. A *system* consists of a set of BPs, possibly residing on distinct peers. A business process specification includes (Catriel Beerli, Anat Eyal, Simon Kamenkovich, Tova Milo, 2006):

- Some general description of the process properties, including its name, capabilities, the service provider, and so on.
- The data used in the process, namely the process variables and the input and output parameters for the participating activities/services.
- The activities of which the process is composed.
- A description of the process operational and data flow.

2.7 Business Process Model

Business Process is the main aspects that been identified to develop this UTP Co-Curriculum Unit Web Based System. Referring to Sparx Systems UML Tutorials of *Business Process Model*, a business process consists of a goal, specific inputs, specific outputs, uses resources, has a number of activities that are performed in some order, may affect more than one organizational unit.

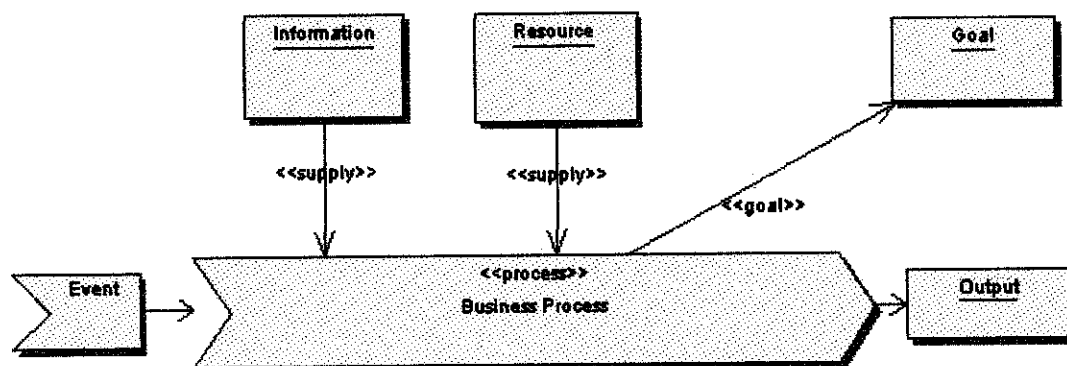


Figure 2.1: Business Process Model

A business process is a collection of activities designed to produce a specific output for a particular customer or market. It implies a strong emphasis on how the work is done within and organization, in contrast to a product's focus on what. A process is thus a specific ordering of work activities across time and place, with a beginning, an end, and clearly defined inputs and outputs which are the structure for action (Sparx Systems UML Tutorials, 2004).

2.8 Business Process Modeling Notation (BPMN)

As identifying business process of Co-Curriculum Unit will be the main scope for this project, idea given by Stephen A. White, IBM Corporation could be very useful. He explain about Business Process Modeling Notation (BPMN) effort which can provide a notation that is readily understandable by all business users, from the business analysts that create the initial drafts of the processes, to the technical developers responsible for implementing the technology that will perform those processes, and finally, to the business people who will manage and monitor those processes. Stephen wrote that BPMN creates a standardized bridge for the gap between the business process design and process implementation (Stephen A. White, 2004).

BPMN defines a Business Process Diagram (BPD), which is based on a flowcharting technique tailored for creating graphical models of business process operations. A Business Process Model, then, is a network of graphical objects, which are activities and the flow controls that define their order of performance.

CHAPTER 3

METHODOLOGY

In developing CCWBS, a suitable methodology is needed to ensure that all steps and deliverables are properly done. This chapter explains the research methodology chosen in accomplishing the research project.

3.1 Research Methodology: Phased Development-Based Methodology

For this research project, the Phased Development-based methodology has been chosen. Figure 3.1 illustrates the Phased Development-based methodology.

In the development of UTP CCWBS, the most important and fundamental requirements will be bundled into the first version of the system. Additional requirements will be added to the system in the next consecutive version of the system.

The phased development-based methodology consists of Planning, Requirements gathering, Requirements Determination, System Modeling, Design and Implementation.

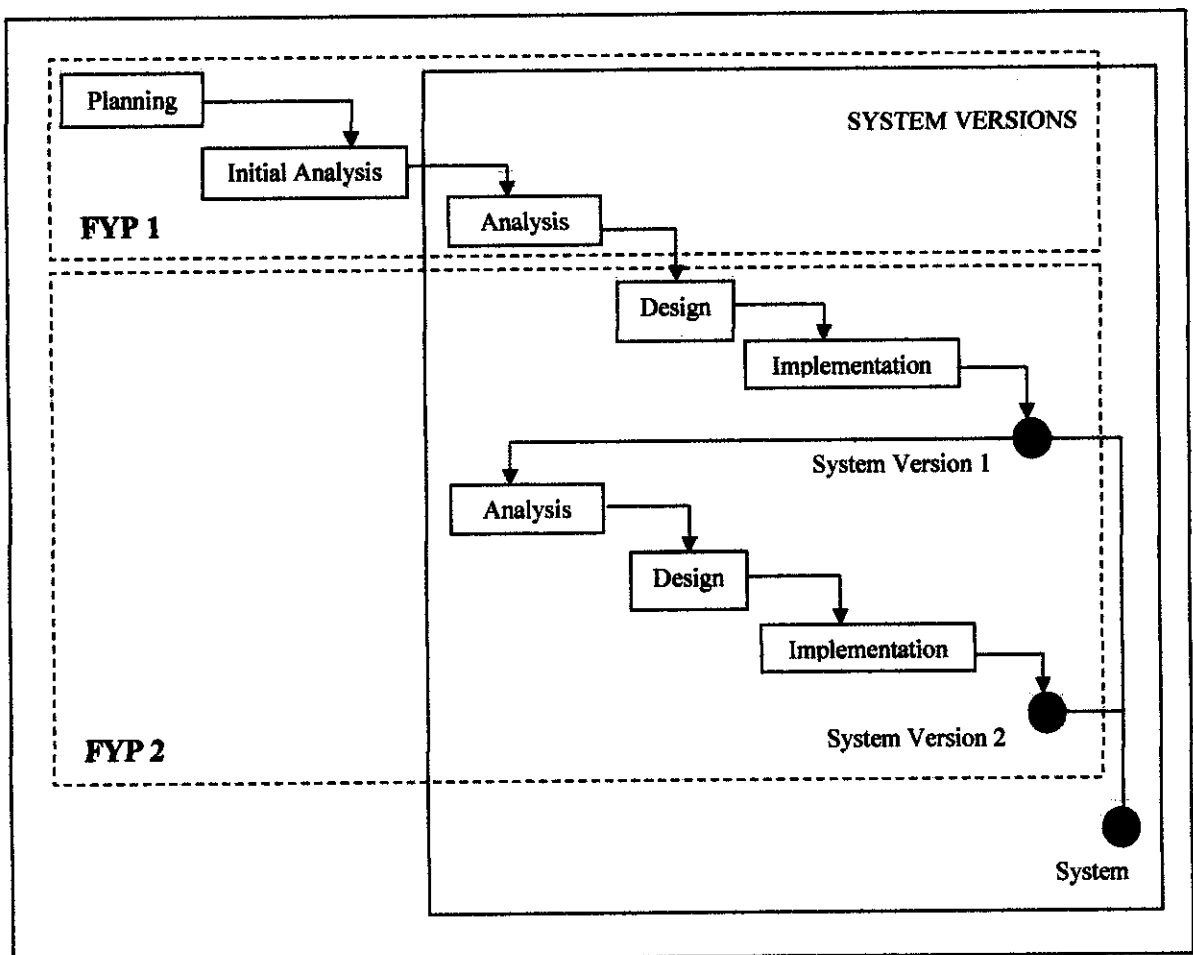


Figure 3.1: A Phased Development Based Methodology

3.2 Planning

In the planning phase, it is important to understand that the research project should be build because of the problem identification that been explained earlier in Chapter 1. As the research project consists of two major parts which are the Final Year Project (FYP) 1 and 2, each part has its own tasks and objectives. Table 1 illustrates the milestones for FYP 3.1 and Table 3.2 shows the milestones of the research project for FYP 2.

Table 3.1: FYP 1 Project Milestone

Milestone	Date
Submission of Proposal	30/01/2009
Proposal Approval by Research Cluster	03/02/2009
Submission of Preliminary Report	18/02/2009
Seminar 1 – Preliminary Reporting	18/02/2009
Submission of Progress Report	11/03/2009
Seminar 2 –Progress Reporting	12/03/2009
Submission of Interim Report	17/04/2009
Oral Presentation	24/04/2009

Table 3.2: FYP 2 Project Milestone

Milestone	Date
Submission of Progress Report 1	29/07/2009
Submission of Progress Report 2	09/09/2009
Seminar – Progress Report 2	Week 7/8
Poster Exhibition and Pre-EDX	07/10/2009
Submission of Dissertation (Soft Bound)	12/10/2009
EDX	21-22/10/2009
Oral Presentation	28/10/2009
Submission of Dissertation (Hard Bound)	16/11/2009

3.3 Analysis

In the Analysis phase, it has been identified that UTP Co-Curriculum Unit staff are the system administrator and the UTP society is the user of CCWBS. The author also investigates the current system that currently be implemented by UTP Co-Curriculum Unit, identifies the improvement opportunities from the problem identified and develop a concept for the new system. Appendix A illustrates the Gantt chart for FYP 1. Appendix B illustrated the Technical Feasibility Study of CCWBS.

3.3.1 Analysis Strategy

The current manual business process called *as-is* system has been analyzed. The main problem was identified which lack of information dissemination to UTP society, regarding Co-Curriculum updated news and events and also the whole idea related to Co-Curriculum Unit roles and processes. Ways to design the automated system been identified and came out with the topic or the research project to develop UTP CCWBS.

3.3.2 Requirements Gathering

The Requirement Gathering been done during the analysis phase to understand more on the business processes. It helps in describing how the *to-be* system will be functioning. For this project, three types of requirement gathering techniques been used which are document analysis, observation and interview.

3.4 Design

The analysis' results gathered earlier is used to decides on how the system will operate in terms of the Software, user Interfaces, database and etc.

3.5 Implementation

Implementation is the final phase for the development of the web based system. CCWBS developed is complying with the open source standards. Table 3.3 defines the system's technical specification.

Table 3.3: System Technical Specification

Scripting Languages	PHP, HTML, JavaScript
Web Server	Apache Web Server
Database	MySQL Database
Development Tools	Macromedia Dreamweaver8, XAMPP Control Panel

Below are the minimum requirements of the system:

- **Pentium III**
- **Microsoft Windows 98, Windows Millennium Edition, Windows 2000, Windows XP Home or Professional**
- **64 MB of RAM**
- **30 MB hard-disk**
- **Web Browser: Mozilla Firefox 1.5.0.9 and above or Internet Explorer 5.0 and above**

CHAPTER 4

RESULTS AND DISCUSSION

This chapter discusses the results and findings obtained in the research project. Interviews have been done with one of the Co-Curriculum Unit executive, Ms Hellina Ahmad Kamil. She has explained the current Co-Curriculum Unit business processes, the organization chart, and the problem that they are facing on managing those business processes. She believes that their current business processes is not been done efficiently since they do not have a proper system to handle the processes automatically.

Other than that, there are also several feedbacks from UTP students regarding the UTP Co-Curriculum Unit services. Example, UTP sports player have actually raised an issue on difficulties in borrowing the sports equipments. The current process been done manually by using forms and it is hard to keep track the equipments that lost. First, student need to go to the Co-Curriculum Unit office located in Block B, then they go to the room that stores all the sports equipments, and see whether the equipments that they want to borrow is available or not. If it is there, they need to get and fill in the Sports Equipment Requisition Form. Students submit the form and the Co-Curriculum Unit staff will keep it as their copy. Then only the student can take the equipments. This process can be time consuming when the Co-Curriculum Unit staff is not in the office which students can't simply take the equipments without fill in the form. Other than that, students are not allowed to submit the form after office hours because there will be no staff in the office. The detail process is illustrated in the *As-is* Activity Diagram.

Other than the equipments borrowing process, the facilities booking process also been done manually. Since the facilities provided are not enough to be used by many students at one particular time, Co-Curriculum Unit comes out with this facilities

booking process. The disadvantages of doing the process manually are it is difficult for students to know the availability of the facilities immediately. They may need to book the facilities earlier. If students want to use the facilities immediately, they can go to the Co-Curriculum Unit office and see the manual schedule wrote by the staff on the white board which located in UTP Co-Curriculum Unit Office. This way of handling the business process is not efficient and time consume as well.

4.1 Requirements Gathering Result

Followed are the results obtained from requirement gathering techniques used by the author as been discussed earlier in Chapter 3.

4.1.1 Document Analysis

The scope of the document analysis technique includes studying the technical documentation of the current manual system been used by UTP Co-Curriculum Unit. The main purpose of document analysis is to get better understanding on the *as-is* system, identify the weaknesses of the *as-is* system and come out with idea on how the *to-be* system will be.

The study on the technical documentation concludes that the *to-be* system has to automate the manual processes that currently being implemented by UTP Co-Curriculum Unit. Instead of having manual schedule on facilities booking process and manual forms for equipments borrowing process, the *to-be* system will automates this system in which the process can be done online. Appendix C and D illustrate the manual form that currently being use by Co-Curriculum Unit for their Sport's Equipment and Facilities Requisition process. Appendix E and F illustrate the Sports Facilities and Sport's Equipment details.

Other document that been analyzed is the hard copy notices that always been posted on boards such as the event promotion notices. The *to-be* system will be used by UTP Co-Curriculum Unit staff to upload and update all the important notices, news and announcement so that UTP society can view it online.

4.1.2 Observation

By doing personal observation, the reality of the situation can be seen. It helps the author in preparing the interview questions. From the observation, it shows that UTP Co-Curriculum Unit is having problems in handling their business process manually. Example, for the Choir recruitment process. Since the author have a personal experience joining the UTP Choir Group, she can see that it was hard for the choir committee to recruit the talented students. It shows the information sharing problem has occurred in the unit because not all students aware about the updated news and activities. Besides, as one of the Sports event committee which is for Outdoor Carnival in 2006 and 2007, it can be seen that the equipments borrowing process is not been done efficiently. The responsible committee had difficulties in borrowing the sports equipments and to book the facilities for the event's usage.

4.1.3 Interview

UTP Co-Curriculum Unit staff been chose as the target interviewees. The main purpose of the interviews conducted by the author is to get better understanding on the business processes in conducting Co-Curriculum events and activities and identify major problems currently encountered by UTP Co-Curriculum Unit staff.

Three interview sessions been conducted with the Executive of Credited Co-Curriculum courses department, Ms Hellina Ahmad Kamil. Table 4.1, 4.2 and 4.3 provides summary report of the 1st, 2nd and 3rd interview sessions. A lot of information collected from the interview sessions. The Executive of Co-Curriculum Credited courses department agreed that there is a need to automate the UTP Co-Curriculum business processes, particularly in facilities booking and equipments borrowing process. She also agreed that if UTP CCWBS is to be implemented, they should have the link in E-Learning web site.

Table 4.1: Interview report – 1st Interview Session

Date: 28 th January 2009	Interviewer: Nadialiyana Yahuza
Person Interviewed: Ms Hellina Bt Ahmad Kamil	
Executive Credited Co-Curriculum Courses, Co-Curriculum Unit, UTP	
Email: hellina@petronas.com.my	
Purpose of Interview:	
<ul style="list-style-type: none">• Inform UTP Co-Curriculum Unit about the intention of developing a web based system for them.• Identify the departmental hierarchy of UTP Co-Curriculum Unit.• Identify UTP Co-Curriculum Unit business processes.• Identify the major problem(s) encountered in each of the business process.	
Summary of Interview:	
<ul style="list-style-type: none">• UTP Co-Curriculum Unit staff agree about the topic been proposed which is the UTP CCWBS.• The complete departmental hierarchy of UTP Co-Curriculum Unit has been identified. The unit is divided into 3 sub departments which are Sports, Art and Cultural and Credited Co-Curriculum courses.• Information of the current business process of the unit is tabulated. All business processes been done manually in each sub departments.• The major problem in the current business process is difficulties of sharing information related to Co-Curriculum unit activities and notices. Besides, there are 2 main processes handle by the unit currently being done manually which is the facilities booking and sport equipments borrowing process.	

Table 4.2: Interview report – 2nd Interview Session

Date: 25 th February 2009	Interviewer: Nadialiyana Yahuza
Person Interviewed: Ms Hellina Bt Ahmad Kamil	
Executive Credited Co-Curriculum Courses, Co-Curriculum Unit, UTP	
Email: hellina@petronas.com.my	
Purpose of Interview:	
<ul style="list-style-type: none">• Determine information requirements for future system	
Summary of Interview:	
<ul style="list-style-type: none">• UTP Co-Curriculum Unit wants to have a web based system that can be the medium of information sharing to the UTP society.• The unit also wants to automate the current manual system so that the UTP society can perform the process on online basis.	
Open Items:	
<ul style="list-style-type: none">• Ms Hellina request to have the link of the web based system under E-Learning website instead of UTP website.	

Table 4.3: Interview report – 3rd Interview Session

Date: 17 th July 2009	Interviewer: Nadialiyana Yahuza
Person Interviewed: Ms Hellina Bt Ahmad Kamil	
Executive Credited Co-Curriculum Courses, Co-Curriculum Unit, UTP	
Email: hellina@petronas.com.my	
Purpose of Interview:	
<ul style="list-style-type: none">• Discussion on what been done so far.• Add on materials for CCWBS.• Ask feedback from Co-Curriculum Unit.	
Summary of Interview:	
<ul style="list-style-type: none">• Ms Hellina explained that they prefer to approve the Sport's Equipment Borrowing process and Facilities Booking process first as the confirmation of the request made by students later.• She also suggested adding Photo Gallery navigation in CCWBS.• There was two new staff in Co-Curriculum Unit, the author been notified with the updated departmental hierarchies.	
Open Items:	
<ul style="list-style-type: none">• Ms Hellina ask the author to contact Ms Faridatul Salwa, the E-Learning administrator to discuss further about how to locate the system link under E-Learning	

4.2 Requirements Analysis

There are three types of Requirements analysis techniques. The choice of those techniques used is based on the amount of change the system is meant to be created for the unit. The UTP Co-Curriculum is expected to create process improvements that lead to better effectiveness and efficiency, thus Business Process Improvement (BPI) technique been chose.

4.2.1 Duration Analysis

Since the UTP Co-Curriculum Unit has three sub departments that handling various types of activities, every business processes that been done manually are time consuming.

The most important issue is the problem of information sharing process. Currently, the UTP Co-Curriculum Unit staff using manual hard copy notices or posted the latest news through E-Learning. Obviously, the manual posted news is not efficient.

because the responsible staff need to prepare the document and print it out. Then, they need to go to the notice board and paste it there. When the staff handles the process through E-Learning, they need to contact the E-learning administrator every time they want to post anything new from UTP Co-Curriculum Unit. However, with UTP CCWBS, the system can improve the information sharing process. The Co-Curriculum unit staff can easily update the news by uploading it in the CCWBS. They are the one that control the system, it is less time consumes and the information can be accessed by all on online basis.

Other than that, the manual activity of handling equipments borrowing and facilities booking process is very time consuming. They use manual form that needs to be filled in by the users. The process is not efficient since the user need to come to the Co-Curriculum Unit in Block B in order to get the form. However, with UTP CCWBS, the process is automated. For users that intend to borrow sports equipments or booking the facilities can do those processes from their room which it can be done online. In the CCWBS, they will be able to see the sports equipments that available to be borrowed and also they can view the current schedule of the facilities booking. It is much easier when the process been automated.

4.3 Requirements Definition

The most important purpose of the requirements definitions is to define the scope of the research. It also helps to provide the information needed to model the system and support activities in the design phase. It will describe exactly what the system needs to do; thus it will be a base-line for reference and clarification if problem arises. Throughout the requirements gathering activities, information obtained were studied and analyzed. It will then added into the Requirements definition document. Table 4.4 summarizes the functional requirements and Table 4.5 summarizes the non-functional requirements of UTP CCWBS.

Table 4.4: UTP Co-Curriculum Unit Functional Requirements

- 1. Sign Up**
 - a) All Co-Curriculum Unit staff needs to sign up as administrator of CCWBS.
 - b) Administrator will need to enter information to register to the system.
- 2. Login**
 - a) Administrator need to login to get an access as administrator of UTP CCWBS using username and password registered earlier.
- 3. Upload Announcement**
 - a) Administrators are able to upload announcements that can be viewed by all students.
 - b) Students can view announcements uploaded by Staff.
- 4. Update Facilities Details and Sport's Equipment data**
 - a) Administrator can update (add, edit, delete) data through the system.
 - b) Administrator and students can view the updated database.
- 5. Update Facilities Booking timetable**
 - a) Administrator can update facilities booking timetable.
 - b) Students can view facilities booking timetable updated by Administrator.
- 6. View facilities booking timetable**
 - c) Students and Administrator can view current facilities booking timetable.
 - d) Students can identify the facilities that they may want to book.
- 7. Book facilities**
 - a) Student has to fill in form with facilities booking details.
 - b) Student can view their booking details.
 - c) Administrator monitors student's application.
- 8. Borrow sport's equipment**
 - a) Student has to fill in form with equipment borrowing details.
 - b) Student can view their borrowing details.
 - c) Administrator monitors student's application.
- 9. Approve request**
 - a) Administrator monitors student's application.
 - b) Administrator checks the availability of the facilities to be booked or the equipments to be borrowed manually.
 - c) Administrator can update the request status and it can be viewed by students from CCWBS page.
- 10. View Requisition Status**
 - a) Students can check their Sports Facilities and Equipment requisition status by entering their full name.

Table 4.5: UTP Co-Curriculum Unit Non-Functional Requirements

- | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none">1. Operational requirements<ol style="list-style-type: none">1.1 The system must be scalable to the amount of users2. Performance Requirements<ol style="list-style-type: none">2.1 Must be available 24 – 7.3. Security requirements<ol style="list-style-type: none">3.1 UTP society can only view and using the automate system3.2 Only UTP Co-Curriculum Unit staff has authorization to access and update database.4. Cultural and Political Requirements<ol style="list-style-type: none">4.1 The core business process of UTP Co-Curriculum Unit must not be change4.2 The system must be flexible to add more functionality |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

4.4 System Modeling

Followed are the system models which model the system requirements defined. The model been used are the functional models, structural models and behavioral models.

4.4.1 Functional Model – Activity Diagram

The activity diagram is used to model the workflow behind the system being designed. It is typically used for business process modeling and to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control. Activity diagrams do not give detail about how objects behave or how objects collaborate. Figure 4.1 and 4.2 illustrate the activity diagram for the current (*'as-is'*) and future (*'to-be'*) system.

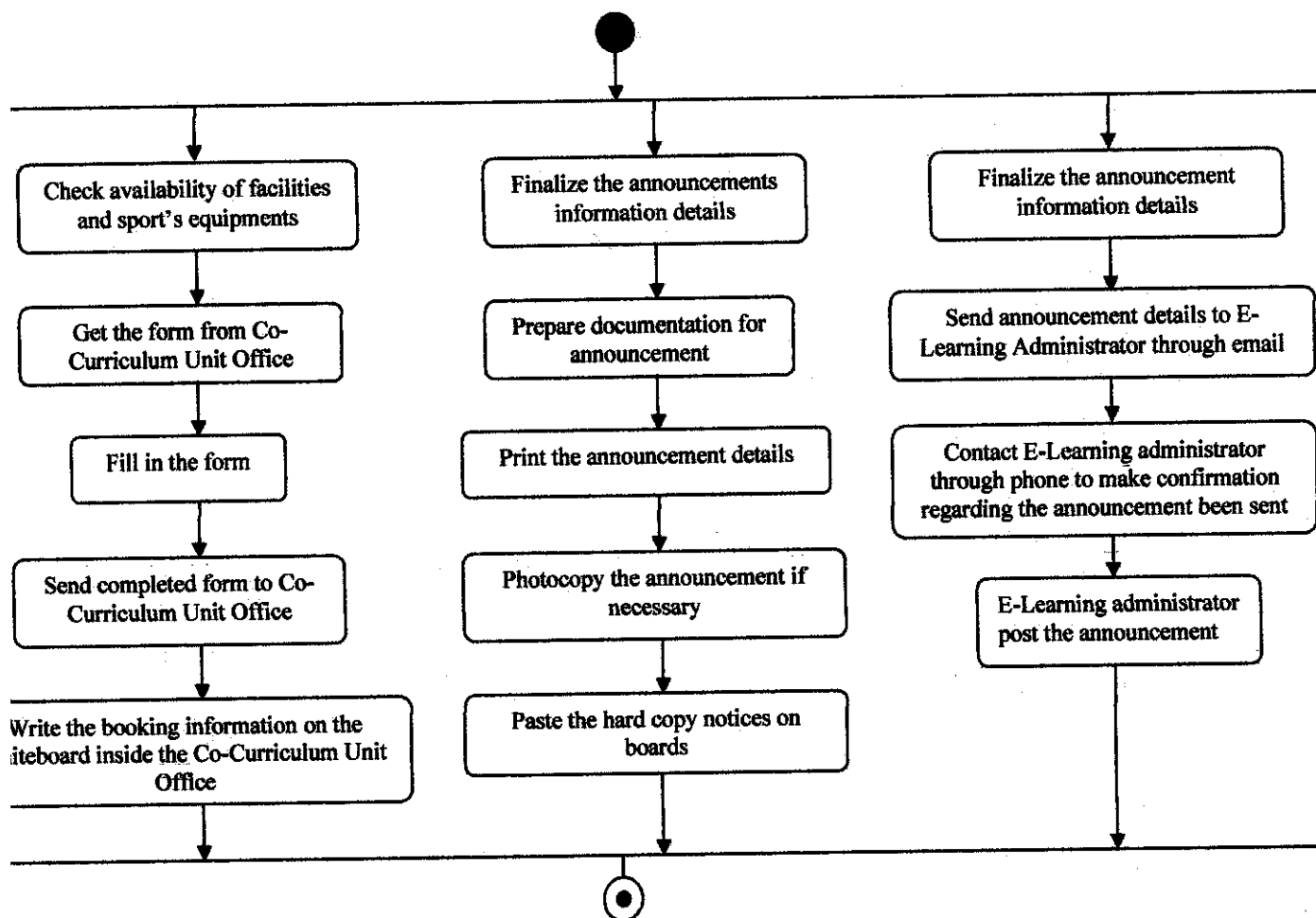


Figure 4.1: As-is Activity Diagram

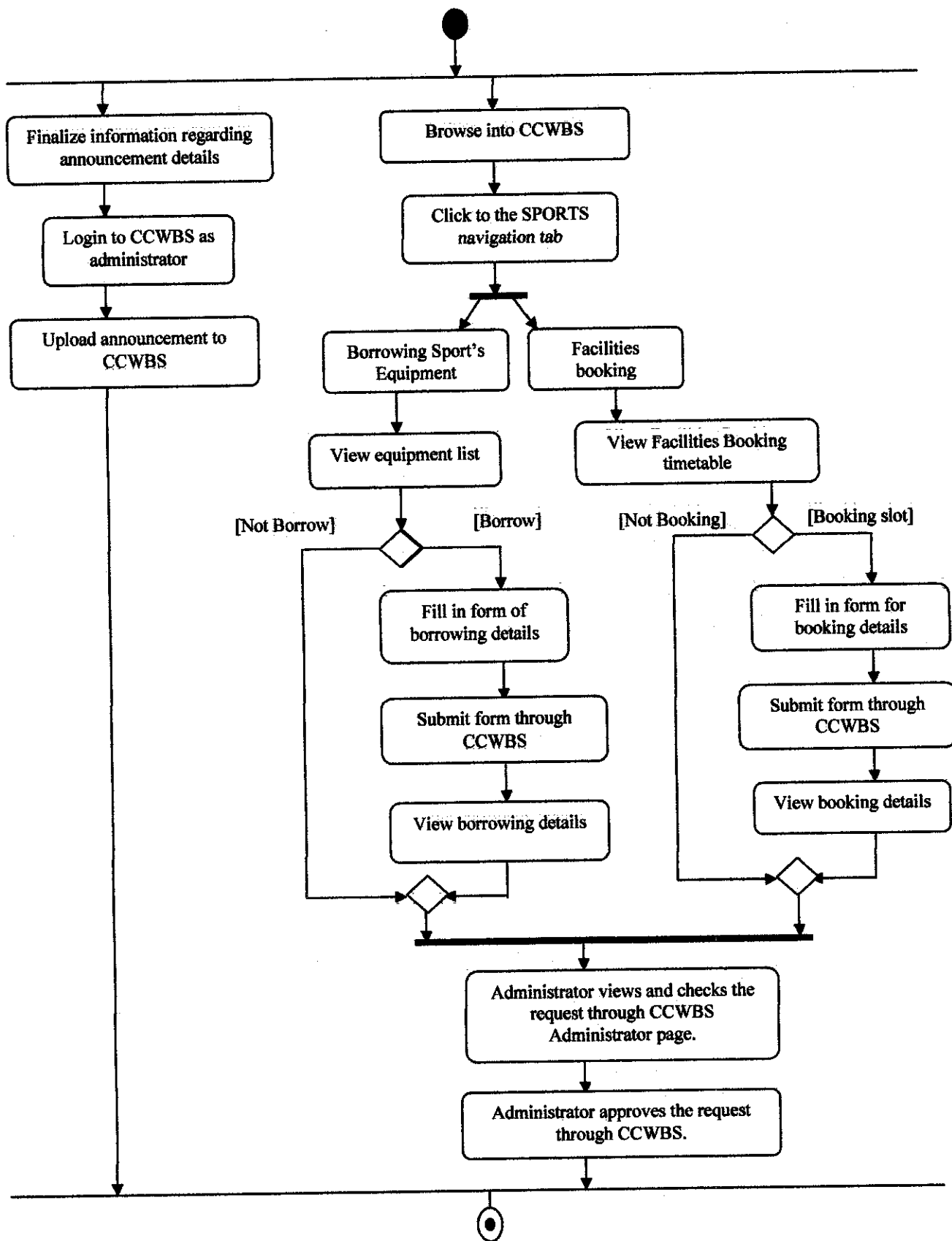


Figure 4.2: 'To-be' Activity Diagram

4.4.2 Functional Model – Use Case Diagram

The Use Cases Model is used to describe the systems functionalities from the users' point of view. Figure 4.3 illustrate the UTP CCWBS Use Case Diagram. Table 4.6 defines the user profile of UTP CCWBS. The use case description is then used to explain the different functionalities for each user. Appendix G documents the use case description of the UTP CCWBS.

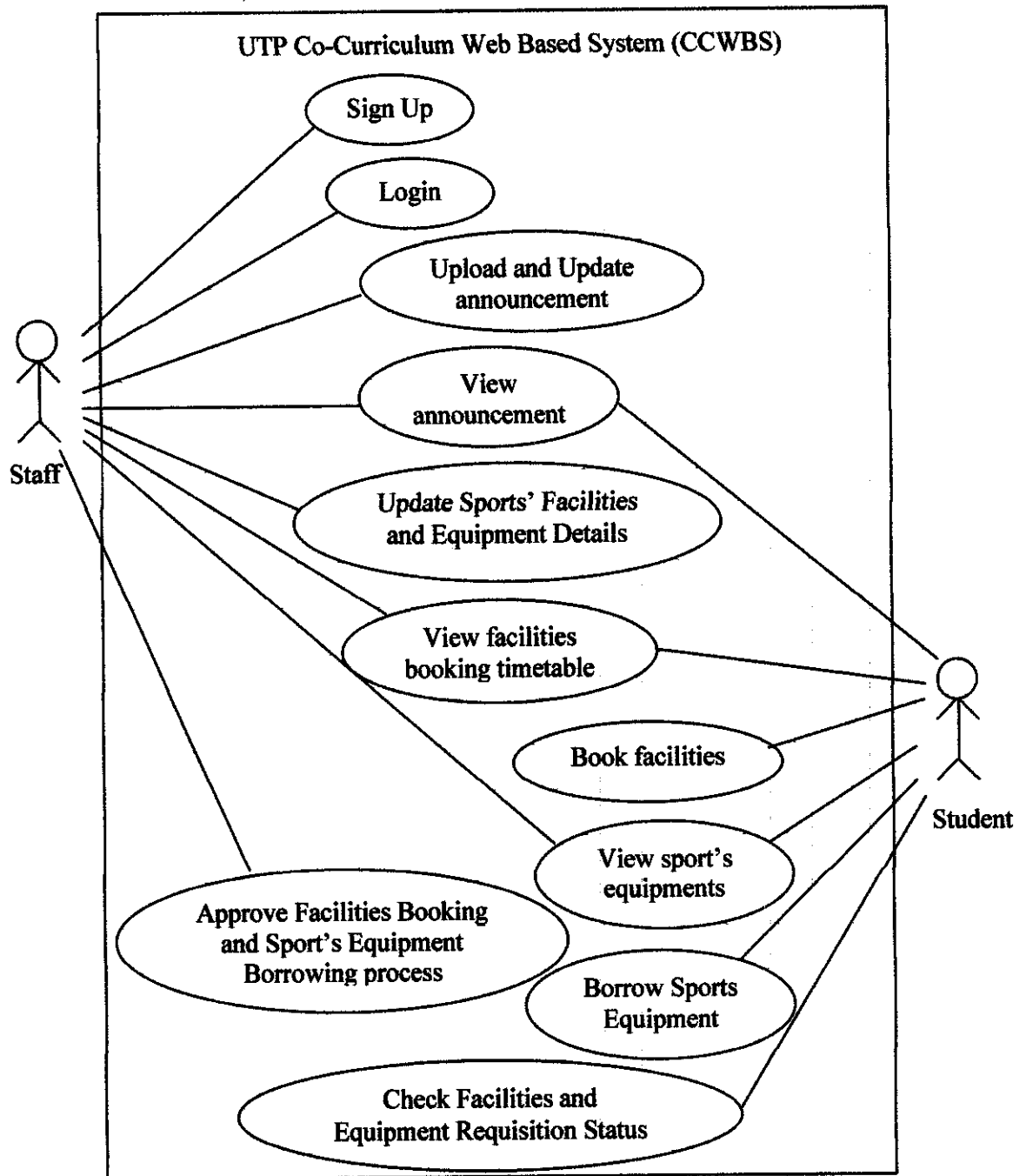


Figure 4.3: Use Case Diagram

Table 4.6: UTP CCWBS User Profile

User	Description
Staff (Administrator)	<p>UTP Co-Curriculum Unit staff or a person that has been given authorization by UTP management to access CCWBS; responsible in managing Co-Curriculum activities in UTP.</p> <ul style="list-style-type: none"> ▪ Managing 3 different sub departments (Sports, Art and Cultural and Credited Co-curriculum courses) ▪ Share information related to all Co-Curriculum activities ▪ Updates data for Sport's Equipments and Facilities details.
Student	<p>Students are the target user in the system; will be able to get updated notices, important announcement and upcoming events information.</p> <p>Booking Sport's facilities</p> <ul style="list-style-type: none"> ▪ View current facilities booking timetable ▪ Book sport's facilities online by fill in form in CCWBS <p>Borrowing Sport's Equipment</p> <ul style="list-style-type: none"> ▪ View the sport's equipment details ▪ Borrow sport's equipment online by fill in form in CCWBS

4.4.3 Structural Model – Class Diagram

Class diagram stores and manage information in the system. It shows the classes and the relationships among classes that remain constant in the system. Figure 4.4 shows the Class Diagram for UTP CCWBS.

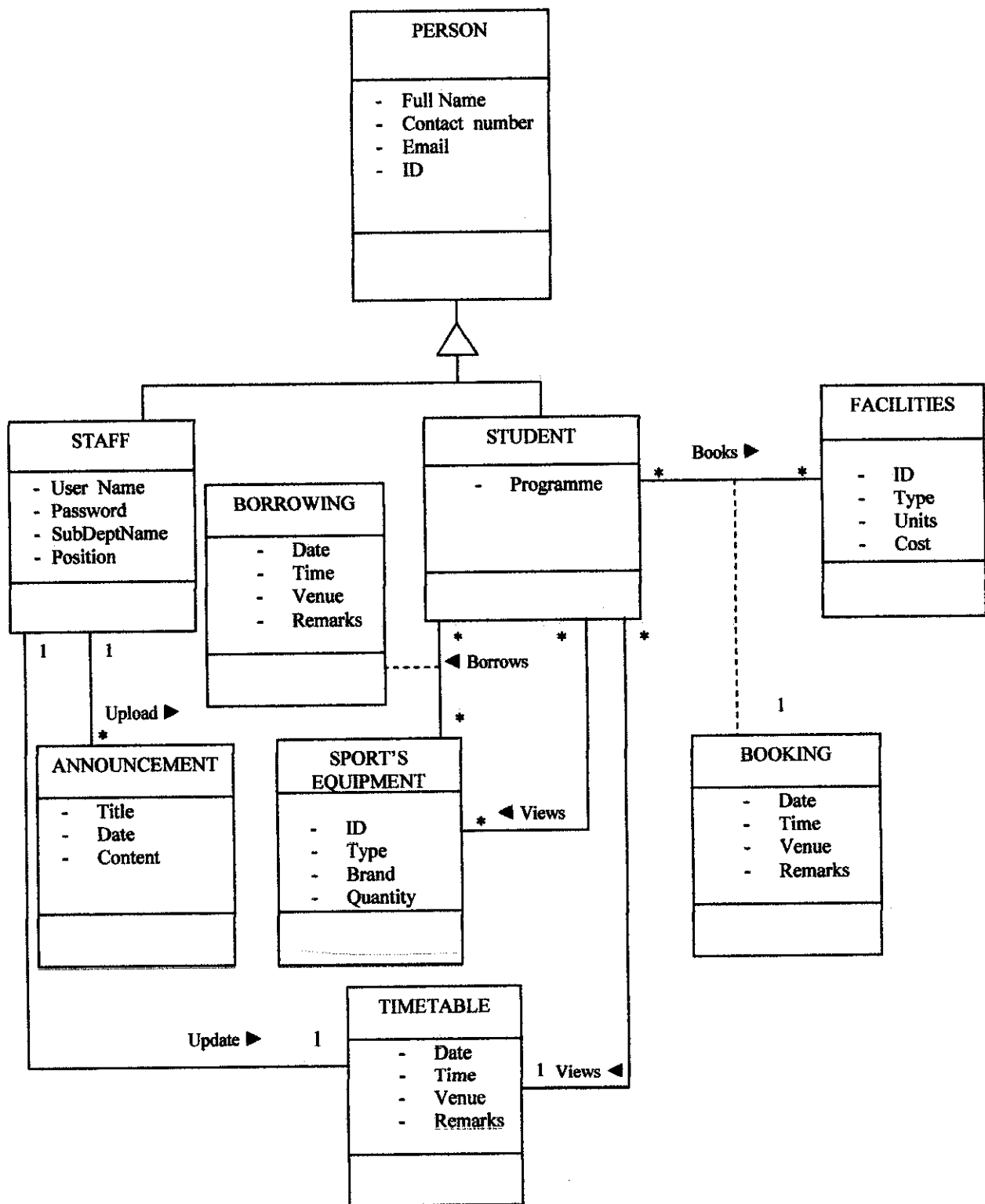


Figure 4.4: Class Diagram

4.4.4 Behavioral Model – Sequence Diagram

All related sequence diagrams are illustrated in Appendix H.

4.5 System Overview

A good system should have clear and user friendly pages flow. It starts from the login until the logout page. Figure 4.5 illustrates the pages flows of CCWBS designed by the author.

4.5.1 CCWBS Pages Flows

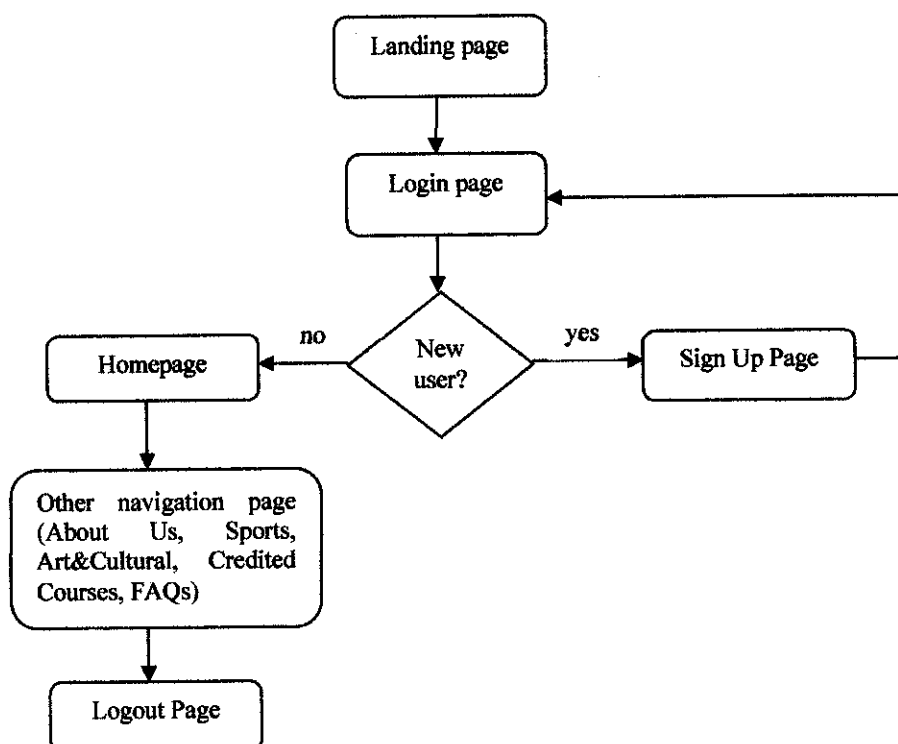


Figure 4.5: CCWBS pages flow chart (Administrator)

As for Student page, there is no Login and Sign Up page. The Landing page display welcome banner and students can go straight to the Homepage and other navigation pages.

4.5.2 CCWBS Pages Plans

CCWBS consists of many different pages. Table 4.7 illustrates the CCWBS pages planned by the author before CCWBS has been developed. It consists of the components in every page and description on what every page should have and Figure 4.6 illustrated the CCWBS Windows Navigation Diagram.

Table 4.7: CCWBS Pages

	Section	Components	Descriptions
1	Landing Page	Welcoming Banner	•All the main menu option that will be link to the respective pages.
2	Login Page	<ul style="list-style-type: none"> • Form • Login button • Forget password link • Sign Up link 	<ul style="list-style-type: none"> • Text boxes of Username and password enable users to login. • Link user to forget password page. • Link new user to sign up page.
3	Forget Password Page	User's IC Number	•Text box that retrieve user's IC number to detect the forget password.
4	Sign Up Page	User details	•Form to retrieve new user details
5	Header	Banner	<ul style="list-style-type: none"> • CCWBS banner consisting of UTP logo, text and images. • Static banner for all pages
6	Main Navigation	Main links	• Appears on the left of every page
7	Home (Admin)	Main content	<ul style="list-style-type: none"> • Shows facilities and sport's equipment requisition and status. • Add, edit and delete Announcement icon.
8	Home (Student)	Main content	• Shows latest news and announcement.
9	Contact Us	Box	<ul style="list-style-type: none"> • Appears under the main navigation on every page • Shows the Co-Curriculum Unit's email, phone number and fax information.
10	About Us	Two Main links	• Consists of every Co-Curriculum Unit staff contact details.
11	Sports (Admin)	Three Main links	• Allows administrator to add, edit and delete Facilities and Equipment details.
12	Sports (Student)	Five links	<ul style="list-style-type: none"> • Shows latest news and announcement under sports sub department • Consists of related timetable, procedure and any static information

Table 4.7: CCWBS Pages (continued)

			related to Sports. <ul style="list-style-type: none"> • Allows user to fill in form for Facilities Booking Process and Equipment borrowing process. • Allows user to view Equipment and Facilities List.
13	Art & Cultural (Admin)	Main link	<ul style="list-style-type: none"> • Allows administrator to add, edit and delete Art Performing Group.
14	Art & Cultural (Student)	Main content	<ul style="list-style-type: none"> • Shows latest news and announcement under Art & Cultural sub department. • Shows list of UTP Performing Arts Group.
15	Credited Courses (Admin)	Main link	<ul style="list-style-type: none"> • Allows administrator to add, edit and delete Foundation and Undergraduate Courses.
16	Credited Courses (Student)	Two Main links	<ul style="list-style-type: none"> • Shows latest news and announcement under Credited Co-Curriculum Courses sub department. • Shows information on every course offered to Foundation and Undergraduates students.
17	FAQs	Main content	<ul style="list-style-type: none"> • Consists of common frequently asked question for user's reference.

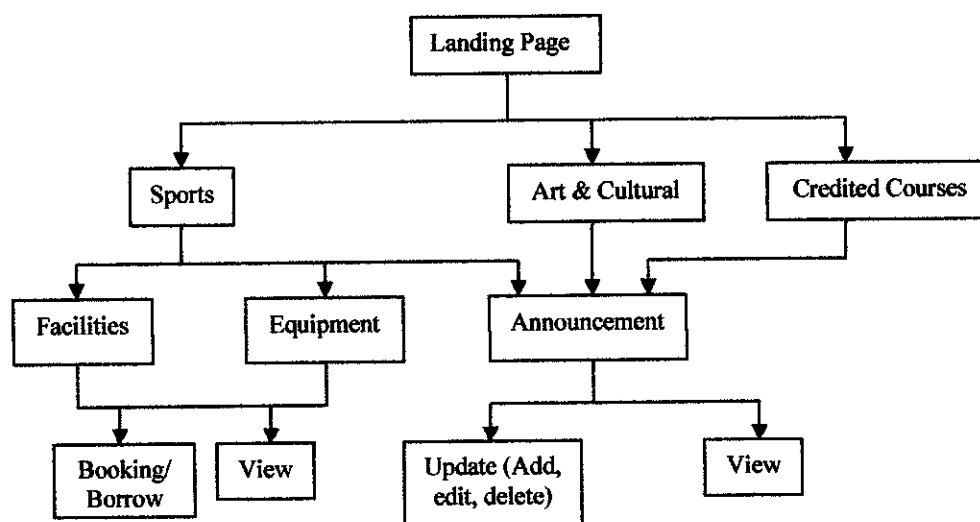


Figure 4.6: CCWBS Windows Navigation Diagram

4.6 System Design

Followed are the discussions of the system design phase. The result of this phase is a base-line for guideline and reference in the CCWBS development process.

4.6.1 User Interface Design

User Interface is the elements of a system that the user interacts with. A system is designed to help users achieve goals. As the users of CCWBS are students and Co-Curriculum Unit staff itself, user interface design is essential so that both users comfortable using the system. The golden rule of design is not do to others what others have done to you. Remember the things you don't like in software interfaces you use. Then make sure you don't do the same things to users of interfaces you design and develop (Tracy Leonard, 1996). The user interface should adhere to the user interface principles listed in Table 4.8.

Table 4.8: User Interface Principles

Coherence	Interface should use consistent language with words, phrases and concepts that familiar to users.
Context	Interface should be structured so that, at any given point, users can identify where they are in relation to the supported options and functions.
Navigation	Interface should clearly indicate to users where they will end up. Instructions for use of the system should be visible or easily retrievable whenever appropriate.
Flexibility	Interface should always give appropriate feedback within a reasonable time. Error messages should be expressed in plain language, precisely indicates the problem, and constructively suggests a solution.

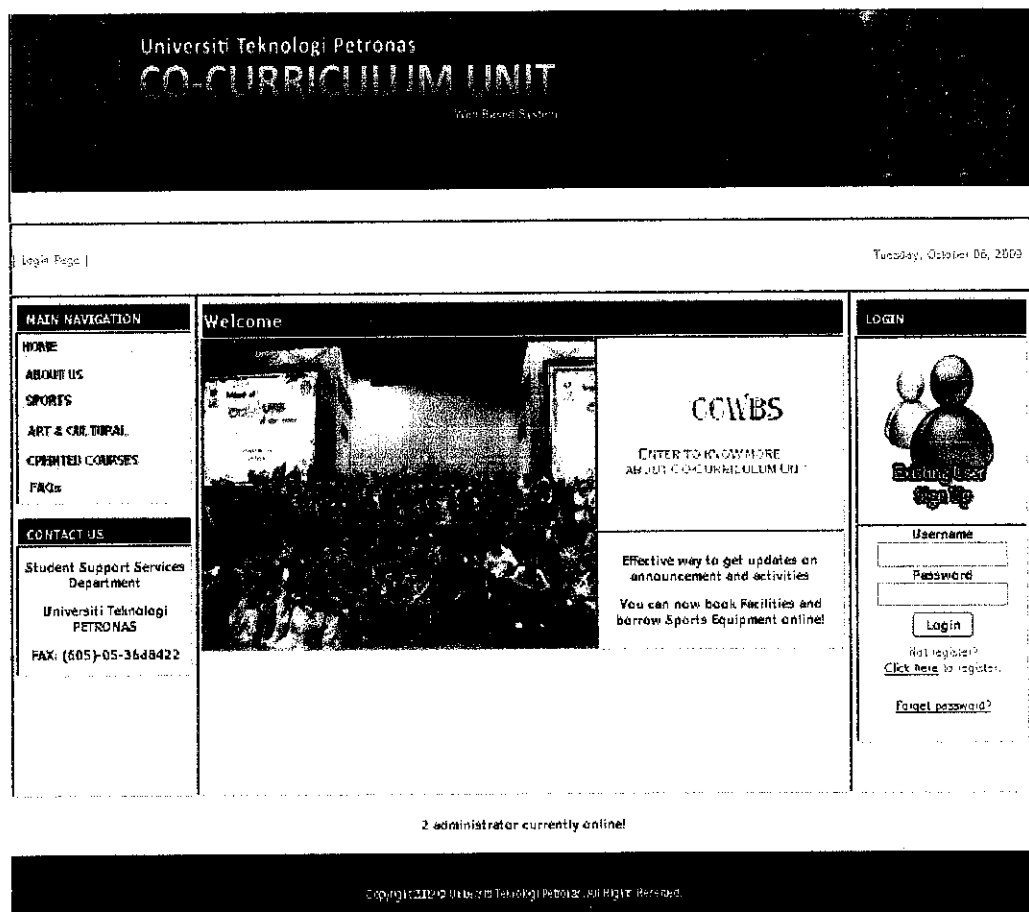


Figure 4.7: CCWBS Graphical User Interface (Landing Page)

A standardize GUI is used throughout the system. Figure 4.7 illustrates CCWBS graphical user interface. This is the Landing Page of CCWBS. As the Administrator, staff must login first. The Administrator must enter the username and password in order to access the Administrator Page. For Staff who has not registered as Administrator yet, they need to register by clicking the 'Click here' link. As for administrator who forget their password, 'Forgot Password' link is available to trace back their username and password been registered earlier. As for student, the Homepage is the same as Administrator Landing page illustrates in Figure 4.7 but without the login form at the right panel. Students can straight away click on other navigation without login to CCWBS.

4.7 Construction: System Prototype

As the construction is the process of coding, it involves programming, creating database and setting up the server. The author has setup Apache server with the MySQL database. Currently the system are not yet been uploaded to the UTP server. From the author's machine, it can be accessed in <http://127.0.0.1/ccwbs/LandingPage.php>. This section will discuss the prototype (CCWBS) constructed by the author.

4.7.1 Web Based System

In a web-based system, the primary user interface is provided through web pages which are accessed on a standard web browser. It can be used to present information from varied sources.

In CCWBS, there are two types of users:

- Administrator (Staff)
- Student

For each user's pages, it shares same basic user interface with different functionalities.

4.7.2 Administrator Page

The Administrator page is a personalized point of access for Co-Curriculum Unit staff that contains information and personalized functionalities that are only accessible by staff. Followed are the functionalities that can only be accessed by Co-Curriculum Unit staff:

- Sign Up
- Login
- View, Change Sport Facilities and Equipment Requisition Status
- View, Edit Personal Info
- Add, Edit, Delete Announcement
- Add, Edit, Delete Sports Facilities Details

- Add, Edit, Delete Sports Equipment Details
- Add, Edit, Delete Facilities Requisition timetable
- Add, Edit, Delete Performing Art Group
- Add, Edit, Delete Foundation Credited Courses details
- Add, Edit, Delete Undergraduate Credited Courses details

4.7.2.1 Administrator Sign Up

Before Co-Curriculum Unit staff been given authorization to access the CCWBS as administrator, they need to sign up first in order to create admin account. As been stated earlier, staff needs to create an account by clicking the ‘Click here’ link in Figure 4.7. The interface of registration form illustrate in Figure 4.8.

Figure 4.8: CCWBS Administrator Register Page

4.7.2.2 Administrator Login

The registered administrator will be able to login to CCWBS by entering the username and password that been registered earlier. CCWBS will prompt error if the administrator entering the wrong username or password. For administrators that forget their password, it can be traced back by clicking the ‘Forgot Password’ link.

The system will trace the username and password by asking administrator to insert their IC Number. In addition, the administrator can see the total number of other administrator that currently online which is displayed at the bottom of CCWBS.

4.7.2.3 Administrator Homepage

Figure 4.9 illustrate the Administrator's Homepage. After successfully login, the administrator will be able to view the Homepage of CCWBS. In here, it will display the Facilities and Sport's Equipment Requisition status. This information has been put in the Homepage because these are the request that needs administrator's attention. Administrator will be able to see the total number of request for each status which are New, Progress, Done or Close. 'New' status includes the entire new request submitted by students. 'Progress' is when the Administrator has viewed the 'New' status and change it to 'Progress' with comments, 'Request viewed, Approval in Progress'. This is very important because the request made by students will not be automatically approved. The status that can be changed by Administrator help them to inform students that their request been process or already approved. Other than that, administrator also can view the status time to time. Administrator will change the status to 'Done' when the request already approved which students are currently using the facilities or equipments. In 'Done' status, it displays Facilities booking or Equipment requisition due date. So, administrator will need to check 'Done' status to keep track the due date of Sports Equipment and Facilities Requisitions. After students finish booking the facilities or using the equipment, the request status change to 'Close' which means it will not require staff's attention anymore. It will just be stored in the database so that Staff can view the student's requisition data.

Other than that, in Homepage, Administrator will be able to upload announcement by clicking the link at the top right panel of CCWBS. The announcement uploaded can be viewed by Students from Student's Homepage. Administrator can also edit or delete the announcement. They also are able to set whether to display the announcement in the Student Homepage or not because sometime, the announcement is only for Staff. Next, Administrators are allowed to view and edit their Personal Information time to time. They may edit their username, email, phone number and password.

Universiti Teknologi Petronas

CO-CURRICULUM UNIT

Web Based System

Home | Sunday, October 11, 2009

MAIN NAVIGATION

HOME

ABOUT US

SPORTS

ART & CULTURAL

CREDITED COURSES

FAQs

CONTACT US

Student Support Services
Department

Universiti Teknologi
PETRONAS

FAX: (605)-3688422

UTP CO-CURRICULUM UNIT WEB BASED SYSTEM (CCWBS)

FACILITIES REQUISITION STATUS

NEW

: 0 request!

IN PROGRESS

: 1 request!

DONE

: 1 request!

(view DONE request to check the END DATE to keep track the usage of Facilities)

CLOSE

: 1 request!

SPORTS EQUIPMENT REQUISITION STATUS

NEW

: 1 request!

IN PROGRESS

: 0 request!

DONE

: 1 request!


(view DONE request to check the RETURN DATE to keep track the usage of Sport's Equipment)


CLOSE


: 0 request!

You logged in as Mohd Zuhri B Zainudin([Logout](#))

QUICK LINK


add, edit, view
announcement


view personal info


edit personal info

Page 1 of 12099 | Universiti Teknologi Petronas | All Rights Reserved

Figure 4.9: CCWBS Administrator’s Homepage

4.7.2.4 Administrator About Us Page

Under this navigation, CCWBS retrieve and display data from Administrator’s registration table. It includes information which is Staff Name, Extension, Sub Department and Email. This information is very important so that students will be able to view Co-Curriculum Unit Staff contact information. This information illustrates the number of Administrator of CCWBS. Figure 4.10 illustrate the Administrator’s About Us Page.

Universiti Teknologi Petronas

CO-CURRICULUM UNIT

Web Based System

About Us | Contact Us

Sunday, October 11, 2009

MAIN NAVIGATION

HOME

ABOUT US

SPORTS

ART & CULTURAL

CREDITED COURSES

FAQs

CONTACT US

Student Support Services
Department

Universiti Teknologi
PETRONAS

FAX: (605)-05-3688422

UTP CO-CURRICULUM UNIT STAFF INFO

STAFF NAME	EXTENSION	SUB DEPARTMENT	EMAIL
Mohd Zuhri B Zainudin	8411	(MANAGER)	zuhriz@petronas.com.my
Ahmad B PG Abdullah	8418	Art and Cultural	ahmad_pgabd@petronas.com.my
Mohammad Muzaffar B Mustafa	8426	Art and Cultural	muzaffar_mustaffa@petronas.com.my
Hellina Bt Ahmad Kamil	8422	Credited Courses	hellina@petronas.com.my
Mohd FuadIriza B Mustafa	8412	Credited Courses	mfuadIriza_mustaffa@petronas.com.my
Nazri B Abd Karim	8427	Sports	nazri_karim@petronas.com.my
Badrolzaman B Ramli	8404	Sports	badarz@petronas.com.my
Zamiruddin B Mahmud	8414	Sports	zamirum@petronas.com.my

Copyright © 2009 by Universiti Teknologi Petronas. All Rights Reserved

Figure 4.10: CCWBS Administrator’s About Us page.

4.7.2.5 Administrator Sport Page

Under Sport Tab on the left panel, it consists of three functions which the administrator will be able to add, edit or delete the Sports Equipment and Facilities Details and also update the Facilities Requisition Request Timetable (after approved). Figure 4.11 illustrated the Administrator Sports page which display the Facilities Details been added. In this figure, it shows that administrator will be able to view, add, edit or delete the facilities details from CCWBS.

The screenshot shows the 'Universiti Teknologi Petronas CO-CURRICULUM UNIT' web-based system. The page is titled 'Sports | Facilities' and shows a table of facilities. The table has columns for NO, TYPE OF FACILITIES, UNITS, EDIT?, and DELETE?. The table lists 18 facilities, including Hockey Field, Swimming Pool, Multipurpose Court, Basketball Court, Beach Volleyball, Rugby Field, Basketball Portable Post, Volleyball Court, Netball Court, Soccer Field, Gymnasium Room, Badminton Court, Table Tennis, Sepaktakraw Court, Futsal Portable Post, Tennis Court, Squash Court, and Kayak. Each facility has a corresponding 'Edit...' and 'Delete...' link. On the right side, there are three quick links: 'add, edit, view Facilities', 'add, edit, view Equipment', and 'add, edit, view Facilities Requisition Status Calendar'. At the bottom, there is a login status: 'You logged in as Mohd Zuhri B Zainudin (Logout)'.

NO	TYPE OF FACILITIES	UNITS	EDIT?	DELETE?
1	Hockey Field	1	Edit...	Delete...
2	Swimming Pool	1	Edit...	Delete...
3	Multipurpose Court	1	Edit...	Delete...
4	Basketball Court	1	Edit...	Delete...
5	Beach Volleyball	1	Edit...	Delete...
6	Rugby Field	1	Edit...	Delete...
7	Basketball Portable Post	2	Edit...	Delete...
8	Volleyball Court	2	Edit...	Delete...
9	Netball Court	2	Edit...	Delete...
10	Soccer Field	2	Edit...	Delete...
11	Gymnasium Room	2	Edit...	Delete...
12	Badminton Court	3	Edit...	Delete...
13	Table Tennis	4	Edit...	Delete...
14	Sepaktakraw Court	4	Edit...	Delete...
15	Futsal Portable Post	5	Edit...	Delete...
16	Tennis Court	5	Edit...	Delete...
17	Squash Court	6	Edit...	Delete...
18	Kayak	18	Edit...	Delete...

Figure 4.11: CCWBS Administrator Sports page (View Facilities Details)

4.7.2.6 Administrator Art & Cultural Page

As this is another sub department in Co-Curriculum Unit, this page allows Administrator to add, edit or delete the Performing Art Group Details. It provides students with the Performing Art Group Information and contents.

4.7.2.7 Administrator Credited Co-Curriculum Courses Page

The third sub department is Credited Co-Curriculum Courses. In this page, Administrator able to add, edit or delete the Foundation and undergraduate Credited courses. It provides important details such as the course name, course code, content and also the credit hour. As for Undergraduate courses, the details are the same as Foundation including the pre-requisite course. By having this function in the system, Administrator able to add new courses if any, edit the current details of the courses and also delete any courses that not been implemented anymore.

4.7.2.8 Administrator FAQs Page

From this page, it displays the static question that may be asked or questioned by staff itself. It consists of general up to specific questions.

4.7.3 Students Page

The Student Page is a personalized point of access for students that contain information and functionalities that only accessible by student. Followed are the functionalities that can only be accessed by students:

- View Announcement
- View Staff Details
- View Sports Facilities List
- View Sports Equipment List
- View Sports Facilities Requisition Timetable
- Submit Sports Facilities Requisition Form
- Submit Sports Equipment Requisition Form
- View Performing Art Group Details
- View Foundation Credited Courses details
- View Undergraduate Credited Courses details

4.7.3.1 Student Homepage

Since the students no need to login in order to access CCWBS, they can straight view the student Homepage. At the right panel of Student Homepage, there are 'Latest Announcement' column that displays the number of announcement according to sub department. Student can click on the number and view the announcement details. Figure 4.12 illustrate the Student Homepage with the Sports Announcement Details.

The screenshot displays the CCWBS Student Homepage. At the top, the header reads 'Universiti Teknologi Petronas CO-CURRICULUM UNIT' with 'Art Based System' below it. A navigation bar includes 'Home' and 'Announcement', with the date 'Sunday, October 11, 2009' on the right. The main content area is divided into three columns. The left column, 'MAIN NAVIGATION', lists links: HOME, ABOUT US, SPORTS, ART & CULTURAL, CREDITED COURSES, FAQ, and CONTACT US. Below these is contact information for 'Student Support Services Department' at 'Universiti Teknologi PETRONAS', including a fax number. The middle column, 'LATEST ANNOUNCEMENT', contains three entries: 'UTP Gamelan Group' (invitation to audition on 7th Oct 2009), 'Orchestra group audition' (date: 20th Oct 2009, venue: Block B), and 'Art Performing Group' (meeting on 25th October 2009). The right column, 'LATEST ANNOUNCEMENT', shows a list of counts: SPORTS event (1), SPORTS (2), ART event (2), ART & CULTURAL (3), and CREDITED COURSES (1). The footer contains a copyright notice for 2009.

MAIN NAVIGATION	
HOME	
ABOUT US	
SPORTS	
ART & CULTURAL	
CREDITED COURSES	
FAQ	
CONTACT US	
Student Support Services Department Universiti Teknologi PETRONAS FAX: (605)-05-3608422	

LATEST ANNOUNCEMENT	
UTP Gamelan Group	For those that interested to join UTP Gamelan group, kindly attend an audition in Block this Wednesday, 7th Oct 2009. Thank you.
Orchestra group audition	Date: 20th Oct 2009 Venue: Block B Those who are interested in playing instruments can come for an audition
Art Performing Group	Attention to all performer, kindly attend meeting at Block B on 25th October 2009. Attendance is compulsory for all. Thank you.

LATEST ANNOUNCEMENT	
SPORTS event	: 1
SPORTS	: 2
ART event	: 2
ART & CULTURAL	: 3
CREDITED COURSES	: 1

Copyright 2009 © Universiti Teknologi Petronas. All Rights Reserved

Figure 4.12: CCWBS Student Homepage (Art&Cultural announcement details)

4.7.3.2 Students About Us Page

In this page, students are able to view details of Co-Curriculum Unit staff. It provides information on staff name, email, extension and their sub department that registers to CCWBS as Administrator. The staff details are always available in CCWBS.

4.7.3.3 Students Sport Page

As been explained earlier in Chapter 1, CCWBS will automate the manual business processes of Co-Curriculum Unit. In Student Sport page, other than be able to view the Sport Equipment and Facilities List, students can fill in Equipment and Facilities Requisition Form through CCWBS online. By having this function, students can easily submit the form without need to go to the Co-Curriculum Office. This online request can be viewed by Administrator in Administrator Homepage. Figure 4.13 illustrate the Facilities Requisitions Form that can be filled in by students. Students can choose more than one facilities per request.

Universiti Teknologi PETRONAS

CO-CURRICULUM UNIT

Web Based System

SPORTS | Facilities Requisition Form

MAIN NAVIGATION

HOME

ABOUT US

SPORTS

ART & CULTURAL

CREDITED COURSES

PHOTO GALLERY

FAQs

CONTACT US

Student Support Services
Department

Universiti Teknologi
PETRONAS

FAX: (603)-95-3688472

FACILITIES REQUISITION FORM

NAME

EMAIL

MATRIC NUMBER

CONTACT NUMBER

PROGRAMME

REQUEST DATE

START DATE

START TIME (24 hours)

END DATE

END TIME (24 hours)

PURPOSE OF USING

FACILITIES QUANTITY

SOCCER FIELD 2

HOCKEY FIELD 1

RUGBY FIELD 1

TENNIS COURT 5

BASKETBALL COURT 1

TABLE TENNIS 4

SWIMMING POOL 1

NETBALL COURT 2

BADMINTON COURT 3

VOLLEYBALL COURT 2

SEPAKTAKRAW COURT 4

GYMNASIUM ROOM 2

BASKETBALL PORTABLE POST 2

SQUASH COURT 6

FUTSAL PORTABLE POST 5

BEACH VOLLEYBALL 1

MULTIPURPOSE COURT 1

KAYAK 10

Kindly refer to above quantity information before enter quantity request

CHOOSE 1st FACILITIES

Quantity

CHOOSE 2nd FACILITIES

Quantity

CHOOSE 3rd FACILITIES

Quantity

Submit

Cancel

Figure 4.13: CCWBS Student Sports page (Facilities Requisition Form)

43

4.7.3.4 Students Art & Cultural Page

In Art & Cultural page, students will be able to view the Performing Art Group Details that been added by Administrator in Administrator Art & Cultural Page. Other than that, at the right panel of this page, the latest announcement number of Art & Cultural sub department been display.

4.7.3.5 Students Credited Co-Curriculum Courses Page

In Student Credited Co-Curriculum Course page, students can view the Credited courses of Foundation and Undergraduates details that been added by Administrator in Administrator Credited Courses Page. Other than that, student can view the details of courses implementation, Course Registration Information, Rules and Regulations and also appeals information. It is all static information included in CCWBS. This page also displays the latest announcement number of Credited Courses Department.

4.7.3.6 Students FAQs Page

From this page, it displays the static question that may be ask or questioned by students. It consists of general up to specific question.

4.8 Testing

In order to eliminate system fault, the author has conducted system testing to CCWBS. There was checking and analysis process of requirements reviews, design reviews, code inspections and product testing. Table 4.9 summarizes the testing conducted.

Table 4.9: System Testing

Usability Test	Observe people using the product to discover errors and areas of improvement.
Acceptance Test	Testing verify a product meets customer specified requirements.
Functional Testing	Validating an application conforms to its specifications and correctly performs all its required functions.

For CCWBS, usability test has been conducted to evaluate CCWBS by testing it on users which are students and Co-Curriculum Unit staff. The usability test was conducted to detect errors and faults. All error and faults found are immediately fixed. According to Wikipedia, Usability testing is a black-box testing. It involves measuring how well test subjects respond in four different areas which are *efficiency*, *accuracy*, *recall*, and *emotional response*. To measure the efficiency of CCWBS, it is about how much time and how many steps are required for users to complete basic tasks. For example, students view Facilities details, fill in Facilities Requisition form and submit the form. To test the *Accuracy*, mistakes made by user was defined. *Recall* is about how much the user remembers afterwards or after periods of non-use of CCWBS. Most of the users said that CCWBS provides Main Navigation that easily to be remembered. Last but not least, the *Emotional response* is about how does the users feel after the tasks completed through CCWBS. After the usability test, the users were giving feedback about how they love to use the system which makes the process easier and they would recommend UTP Co-Curriculum Unit to implement this system for UTP society.

Besides usability testing, an Acceptance test was also implemented on the users. The test been conducted to ensure that CCWBS meets the functional and non-functional requirements defined in the requirement definition phase.

The final prototype of CCWBS meets all functional and non-functional requirements which the basic functionalities of the business process meet to users' expectations. However, as a result, feedback and suggestions from users regarding CCWBS performance and functionalities is received. These suggestions and opinion can be further studied as for further enhancement.

4.8.1 System Limitations

Followed are the system limitations identified during the testing:

1. Outsiders as users

CCWBS only consists of two users which are UTP Co-Curriculum Unit staff and students. Outsiders are actually involved in UTP Co-Curriculum Unit business processes which they are allowed to book sports facilities and borrow sport's equipment with fees. As for CCWBS, the outsider is not one of the users.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

This research project for UTP CCWBS has been completed. The business processes identified during FYP part 1 been used to develop and implement a prototype that automates the UTP Co-Curriculum Unit business processes. As for FYP part 1, it focuses on understand in details about each business processes to have strong background to be able to develop the prototype. As for FYP part 2, CCWBS is designed using Macromedia Dreamweaver8 and using MySQL language for the database.

As discussed with the collaborator, Ms Hellina earlier about the system development matters, the functions is developed according to collaborator needs. Example, the Sport Facilities Requisition Form has been completed with functions that allow administrator to view the student's request first before approving it. This helps Co-Curriculum Unit staff to increase effectiveness in handling the business process. CCWBS expected to be one stop center for UTP Co-Curriculum Unit to be more present to the eyes of UTP society.

As for recommendation, the business process of UTP Co-Curriculum Unit also involves outsiders whom they also allowed to rent the sport's equipment and facilities with fees. Since CCWBS is not focusing on this, hopefully there are students that can upgrade the system which involves outsider as user.

REFERENCES

- [1] William J. Flanagan (2006). The Co-Curriculum Dimensions of Learning from:
<http://www.beloit.edu/student/cocurriculum2006.pdf>

- [2] BERNAMA (2008). Undergrads may get extra for co-curriculum from:
<http://www.bernama.com/bernama/v5/newsindex.php?id=311416>

- [3] Willamette University (2001). Towards a Powerful Co-Curriculum: A Report from the Task Force on Campus Life from:
<http://www.willamette.edu/dept/campuslife/pdf/taskreport.pdf>

- [4] Steve Tom (2002). Web Based Control System from:
<http://www.automatedbuildings.com/news/sep02/articles/stom/stom.htm>

- [5] Rob Berg (2006). Business process improvement: Seven steps to operational excellence from:
http://www.perrknight.com/media/whitepapers/Business_Process_Improvement.pdf

- [6] Catriel Beeri, Anat Eyal, Simon Kamenkovich, Tova Milo (2006). Proceedings of the 32nd international conference on Very large data bases. *Querying business processes*, 343 – 354.

- [7] Sparx Systems UML Tutorials (2004). The Business Process Model from:
http://www.sparxsystems.com/downloads/whitepapers/The_Business_Process_Model.pdf

- [8] Stephen A. White (2004). Introduction of BPMN from:
<http://www.bpmn.org/Documents/Introduction%20to%20BPMN.pdf>

- [9] http://en.wikipedia.org/wiki/Usability_testing

APPENDIX A

GANTT CHART

FYP1

PHASE	ACTIVITIES	Jan				Feb				March				April			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proposal	Documentation																
	Planning																
	Discussion with Supervisor																
	Research on Conference paper and journal																
Preliminary	Literature Review																
	Discussion with Supervisor																
	Complete Documentation																
Seminar 1	Discussion with supervisor																
	Doing interview and document analysis																
	Analysis data and information																
Progress report	Discussion with supervisor																
	Specify system requirements																
	Complete documentation																
Seminar 2	Discussion with supervisor																
	Prepare presentation slides																
	Doing interview																
Interim Report	Reanalysis user requirements																
	Identify Recommendation																
	Discuss with supervisor																
	Complete documentation																
Oral presentation																	
	Discussion with supervisor																
	Prepare presentation slides																

APPENDIX B: TECHNICAL FEASIBILITY REPORT

User's familiarity with web-based application is LOW.

Only Co-Curriculum Unit staffs have very little experience with web-based application.

Developer's knowledge on programming languages used is considered MEDIUM.

Scripting Language	Developer Skill Level		
	1	2	3
PHP		V	
JavaScript		V	
SQL		V	

*1 being the lowest and 3 the highest

Project size is considered MEDIUM.

- The project size is medium and the time frame to accomplish is not more that 1 year
- There is only 1 developer supervised by a lecturer supervisor
- Project requirements and problem are well defined and identified.

Compatibility risk is MEDIUM.

Development of the system can be done locally. Testing of system can be done remotely in a server located in UTP intranet. However, it is difficult to test users outside UTP.



UNIVERSITI
TEKNOLOGI
PETRONAS

**CO-CURRICULUM UNIT
EQUIPMENT / ITEM REQUISITION FORM**

- * Approval on request / proposal must be attached with this form.
Form must be submitted 1 week before the event/program.
- * For rental purposes, please make payment at the Finance Dept. and submit a copy of the receipt to Co-Curriculum unit
- * Please refer to the next page for rules and regulation for borrowing Equipment / Items.

1. PARTICULARS OF USER

☐

Rental

☐

Others

NAME: _____ MATRIC / STAFF NO: _____

I.C NO/PASSPORT: _____ TEL. NO: _____

ADDRESS: _____ PROG. /DEPT: _____

PURPOSE OF USING: _____

DATE: _____ TO _____ ☐ DAY/S

2. DETAILS OF EQUIPMENT / ITEM

NO	ITEM	QUANTITY	REMARKS

**Kindly attach the list of additional equipment/item if space provided is insufficient.*

****FINANCE DEPARTMENT : Payment in to Cost Centre :- 153507-000/GL Code : 29990100**

I HEREBY AGREE TO ABIDE ALL RULES & REGULATION REGARDING BORROWING OF UTP SPORT/CO-CURRICULUM EQUIPMENT/ITEMS.

Signature of applicant

Date

OFFICE USE

Issued out by

Signature

Date

Returning equipment /
item received by

Signature

Date



**CO-CURRICULUM UNIT
FACILITIES REQUISITION FORM**

1. PARTICULARS OF USER

<input type="checkbox"/>	Rental
<input type="checkbox"/>	Others

NAME _____

MATRIC / STAFF NO. _____

IC NO/PASSPORT: _____ TEL. NO. _____

ADDRESS: _____
PROG. /DEPT: _____

PURPOSE OF ISSUING

2. DETAILS OF USAGE

SOCCER			
HOCKEY			
NETBALL			
BUGGY			

	BADMINTON
	SQUASH
	TABLE TENNIS
	TENNIS

	VOLLEYBALL
	BASKETBALL
	SEPAK TAKRAW
	OTHER _____

[illegible]

_____ I HEREBY AGREE TO ABIDE ALL RULES & REGULATION RETAINING THE UTP SPORT COMPLEX.

Signature of applicant

Date _____

OFFICIALS

☐ APPROVED

NOT APPROVED

RECEIPT NO

AUTHORIZED SIGNATURE:

AUTHORIZED SIGNATURE:

DATE:

FINANCE DEPARTMENT - Payment in to Cash Centre :- 153507-000/GL Code : 29990100

FINANCE DEPARTMENT - Payment in to Cost Centre :- 153507-000/GL Code : 29990100

SPORTS FACILITIES

NO	VENUE	UNITS	COST
1	Badminton Court	3 units	10.00 /hr 100.00 /day
2	Tennis Court	5 units	10.00 /hr 15.00 /hr (N) 80.00 /day
3	Squash Court	6 units	10.00 /hr 100.00 /day
4	Beach Volleyball	1 unit	10.00 /hr 100.00 /day
5	Volleyball Court	2 units	10.00 /hr 100.00 /day
6	Sepaktakraw Court	4 units	5.00 /hr 50.00 /day
7	Basketball Court	1 unit	10.00 /hr 100.00 /day
8	Table Tennis	4 units	5.00 /hr 50.00 /day
9	Netball Court	2 units	5.00 /hr 50.00 /day
10	Soccer Field	2 units	25.00 /hr 120.00 /day
11	Hockey Field	1 unit	25.00 /hr 120.00 /day
12	Rugby Field	1 unit	25.00 /hr 120.00 /day
13	Swimming Pool	1 unit	School children 1.00 /entry
14	Kayak	18 units	20.00 /unit
15	Multipurpose Court (Netball Court) upgraded	1 unit	-
16	Basketball Portable Post	2 units	-
17	Futsal Portable Post	5 unit pairs	-
18	Gymnasium Room	2 units	-

SUKAN	PERALATAN	JENAMA
BADMINTON	NET	YONEX
	SHUTTLECOCK	RSL
	NET	GTO
SKUASY	SHUTTLECOCK	RSL
	BOLA	DUNLOP 2 DOT
	MESIN TENIS	TENNIS TUTOR
TENNIS	BOLA	DUNLOP FORT
	NET	GTO-6P
	BOLA	DUNLOP FORT
SCRABBLE	SCRABBLE SET	
BOLA TAMPAR	NET	GTO
	BOLA	MOLTEN MV210
	NET	GTO
BOLA KERANJANG	NET	GTO
	BOLA	MOLTEN
	BIB	DEAGO
BOLA JARING	BIB	DEAGO
	BIB	DEAGO
	BIB	DEAGO
	BOLA	MOLTEN
	NET	GTO
	BOLA	MOLTEN
SEPAK TAKRAW	NET	GTO
	NET	GTO
	BOLA	GAJAH EMAS
RAGBI	RAGBI POST PADDING	NO BRAND
	BOLA	GILBERT
	BOLA	GILBERT
BOLASEPAK	NET	GTO
	BOLA	ADIDAS TENDO
	NET	GTO
	BOLA	ADIDAS
FUTSAL	NET	GTO
	BOLA	ADIDAS
HOKI	NET	GTO
	NET	GTO
	BOLA	KOOKABURA

HOKI BARU	KAYU HOKI	GRAYS FIBER 45
	HOCKEY HELMET	BAUER HH3000
	HAND PROTECTOR	GRAYS G400
	CHEST PROTECTOR	GRAYS G400
	BAUER THROUT PROTECTOR	BAUER
	SHOULDER & ARM GUARD	GRAYS G500
	LEG GUARD & KICKERS	GRAYS G400
	ABDOMINAL GUARD MEN	GRAYS G500
	GOALKEEPER PANT LYCR	GRAYS G500
	KICKER STRAPS	GRAYS
	BEG GOALKEEPER	KC HOCKEY
	BAT KRIKET	BDM WORLD CUP
	BOLA KRIKET	SC CROWN A
	GLOVE BATTER	BDM GALAXY
KRIKET	GLOVE WICKET	BDM
	LEG GUARD	BDM
	KRIKET STUMPS	BDM SENIOR
	KRIKET HELMET	PUMA
	BEG KRIKET	BDM
	ELECTRIC PUMP	SWAN
	CAKERA	NO BRAND
	BATTON	NO BRAND
	LONTAR PELURU	NO BRAND
	LONTAR LEMBING	NO BRAND
PERALATAN LAIN	COMMERCIAL UMBRELLA	NO BRAND
	MEASURING TAPE	30M
	GRIP	RUBBER
	GRIP	TOWEL
	PENGUKUR JALAN	
	HAILER	
	JAVELIN	800GM
	TRAINING BIB	CHEETAH

SUKAN	PERALATAN	JENAMA
JERSI BARU	BOLA SEPAK	MIZUNO
	BOLA SEPAK	MIZUNO
	RAGBI	CANTERBURY
	RAGBI	CANTERBURY
	SEPAK TAKRAW	MIZUNO
	SEPAK TAKRAW	MIZUNO
	BOLA JARING	MIZUNO
	BOLA JARING	MIZUNO
	BOLA TAMPAR LELAKI	MIZUNO
	BOLA TAMPAR LELAKI	MIZUNO
	BOLA TAMPAR WANITA	MIZUNO
	BOLA TAMPAR WANITA	MIZUNO
	BOLA KERANJANG LELAKI	MIZUNO
	BOLA KERANJANG LELAKI	MIZUNO
	BOLA KERANJANG WANIT	MIZUNO
	BOLA KERANJANG WANIT	MIZUNO
	HOKI LELAKI	MIZUNO
	HOKI LELAKI	MIZUNO
	HOKI WANITA	MIZUNO
	HOKI WANITA	MIZUNO
SELUAR BARU	BOLA SEPAK	MIZUNO
	BOLA SEPAK	MIZUNO
	RAGBI	CANTERBURY
	SEPAK TAKRAW	MIZUNO
	SEPAK TAKRAW	MIZUNO
	BOLA JARING	MIZUNO
	BOLA JARING	MIZUNO
	BOLA TAMPAR LELAKI	MIZUNO
	BOLA TAMPAR LELAKI	MIZUNO
	BOLA TAMPAR WANITA	MIZUNO
	BOLA TAMPAR WANITA	MIZUNO
	BOLA KERANJANG LELAKI	MIZUNO
	BOLA KERANJANG LELAKI	MIZUNO
	BOLA KERANJANG WANIT	MIZUNO
	BOLA KERANJANG WANIT	MIZUNO
	HOKI LELAKI	MIZUNO
	HOKI LELAKI	MIZUNO
	HOKI WANITA	MIZUNO
	HOKI WANITA	MIZUNO

SUKAN	PERALATAN	JENAMA
STOKING BARU	BOLA SEPAK	MIZUNO
	BOLA SEPAK	MIZUNO
	RAGBI	NO BRAND
	SEPAK TAKRAW	MIZUNO
	SEPAK TAKRAW	MIZUNO
	BOLA JARING	MIZUNO
	BOLA JARING	MIZUNO
	BOLA TAMPAR LELAKI	MIZUNO
	BOLA TAMPAR LELAKI	MIZUNO
	BOLA TAMPAR WANITA	MIZUNO
	BOLA TAMPAR WANITA	MIZUNO
	BOLA KERANJANG LELAKI	MIZUNO
	BOLA KERANJANG LELAKI	MIZUNO
	BOLA KERANJANG WANIT	MIZUNO
	BOLA KERANJANG WANIT	MIZUNO
	HOKI LELAKI	MIZUNO
	HOKI LELAKI	MIZUNO
	HOKI WANITA	MIZUNO
	HOKI WANITA	MIZUNO
	BOLA SEPAK	MIZUNO
JERSI&SELUAR GOALKEEPER	BOLA SEPAK	MIZUNO

DISEDIAKAN OLEH:

TARIKH SEMAKAN

APPENDIX G: USE CASE DESCRIPTION

ID: 1
Use case Name: Sign Up Priority: <u>High</u> Primary Actor: Staff
Stakeholders and Interest: Staff - wants to create an account as administrator
Brief Description: This use case describes how staff sign up to the system to get an access as administrator
Trigger: Staff enters their personal details Type: External
Relationships: Association: Staff
Normal Flow of Events: <ol style="list-style-type: none"> 1. Staff enters full name, username, email, IC number, extension number, sub department and etc 2. Staff able to browse to the system as administrator
Sub Flow:-
Alternatives/Exceptional Flows: 1a. Staff does not key in the correct personal details

ID: 2
Use case Name: Login Priority: <u>High</u> Primary Actor: Staff
Stakeholders and Interest: Staff - wants to get access to the system as administrator
Brief Description: This use case describes how staff login to the system to get an access as system administrator
Trigger: Staff enter their username and password Type: External
Relationships: Association: Staff
Normal Flow of Events: <ol style="list-style-type: none"> 1. Staff enter username and password been set during sign up

2. Staff able to browse to the system as system administrator
Sub Flow:-
Alternatives/Exceptional Flows: 1a. Staff does not key in the correct username or password

ID: 3
Use case Name: Upload announcement
Priority: <u>High</u>
Primary Actor: Staff
Stakeholders and Interest: Staff – wants to upload announcement Students – wants to view announcement
Brief Description: This use case describes how staff upload announcement for other users to view
Trigger: Staff keys in announcement details
Type: External
Relationships: Association: Students
Normal Flow of Events: 1. Staff key in announcement title, content, date, venue and etc. 2. Students can view announcement uploaded by staff.
Sub Flow: -
Alternatives/Exceptional Flows: -

ID: 4
Use case Name: Update Sport's equipment and Facilities data
Priority: <u>Average</u>
Primary Actor: Staff
Stakeholders and Interest: Staff – wants to update the sport's equipment and facilities details if necessary Students – wants to view the updated sport's equipment and facilities details
Brief Description: This use case describes how staff add, delete or edit the sport's equipment data and facilities
Trigger: Staff access the database and update
Type: External
Relationships: Association: Student
Normal Flow of Events:

1. Staff update the sport's equipment and facilities details in a database
2. Staff and students can view the updated database
Sub Flow: -
Alternatives/Exceptional Flows: -

ID: 5
Use case Name: Facilities booking timetable
Priority: <u>Average</u>
Primary Actor: Student
Stakeholders and Interest: Staff - wants to update facilities booking timetable Student – wants to view the current facilities booking timetable
Brief Description: This use case describes how staff updates the facilities booking timetable so that can be view by students.
Trigger: Staff update the facilities booking timetable and students view it.
Type: External
Relationships: Association: Student, Staff
Normal Flow of Events: 1. Staffs add, edit or delete facilities booking timetable details. 2. Student able to view the current facilities booking timetable
Sub Flow: -
Alternatives/Exceptional Flows: -

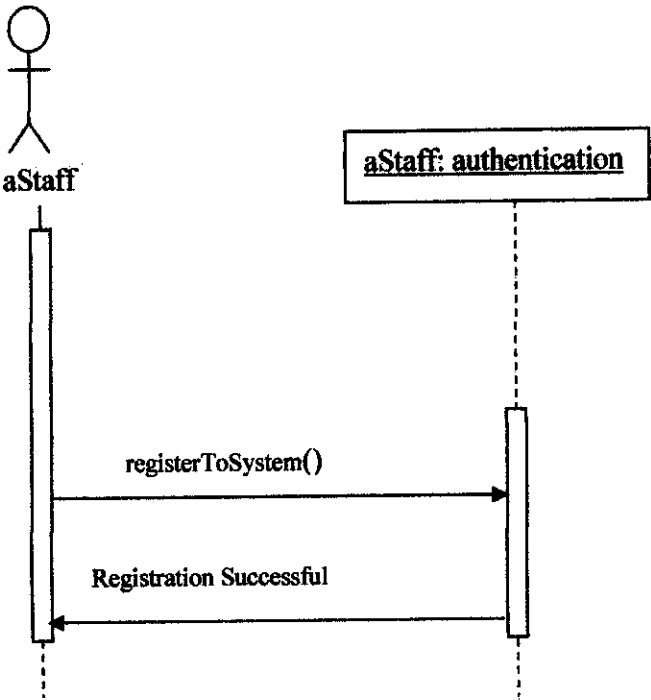
ID: 6
Use case Name: Sports Facilities Booking
Priority: <u>High</u>
Primary Actor: Student
Stakeholders and Interest: Student – wants to book the Facilities
Brief Description: This use case describes how student book for the facilities online
Trigger: Student book the facilities
Type: External
Relationships: Association: Staff
Normal Flow of Events: 1. Students submit Facilities Requisition form to book the facilities. 2. Student can view their booking details

3. Staffs monitor the student's request.
Sub Flow: -
Alternatives/Exceptional Flows: -

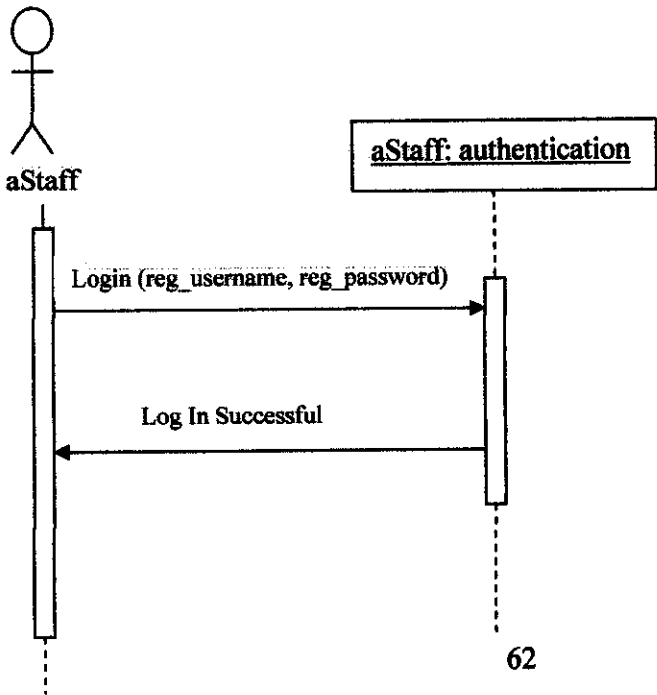
ID: 7
Use case Name: Borrow sport's equipment
Priority: <u>High</u>
Primary Actor: Student
Stakeholders and Interest: Student – wants to borrow the sport's equipment
Brief Description: This use case describe how student borrow the sport's equipment online
Trigger: Student borrow the sport's equipment
Type: External
Relationships: Association: Staff
Normal Flow of Events: <ol style="list-style-type: none"> 1. Students submit Equipment Requisition form to borrow the equipment 2. Student can view their borrowing details 3. Staff monitors student's request.
Sub Flow: -
Alternatives/Exceptional Flows: -

APPENDIX H: SEQUENCE DIAGRAMS

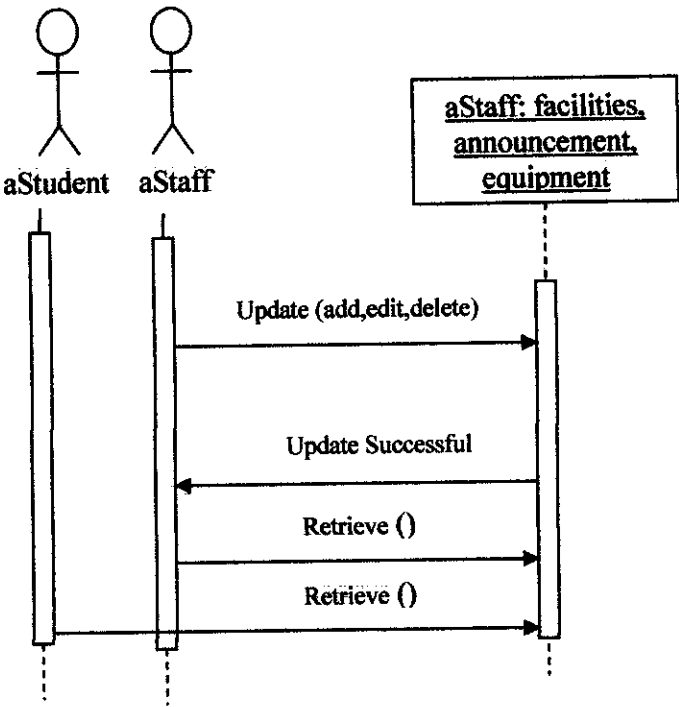
Sequence Diagram: Register to System Use Case



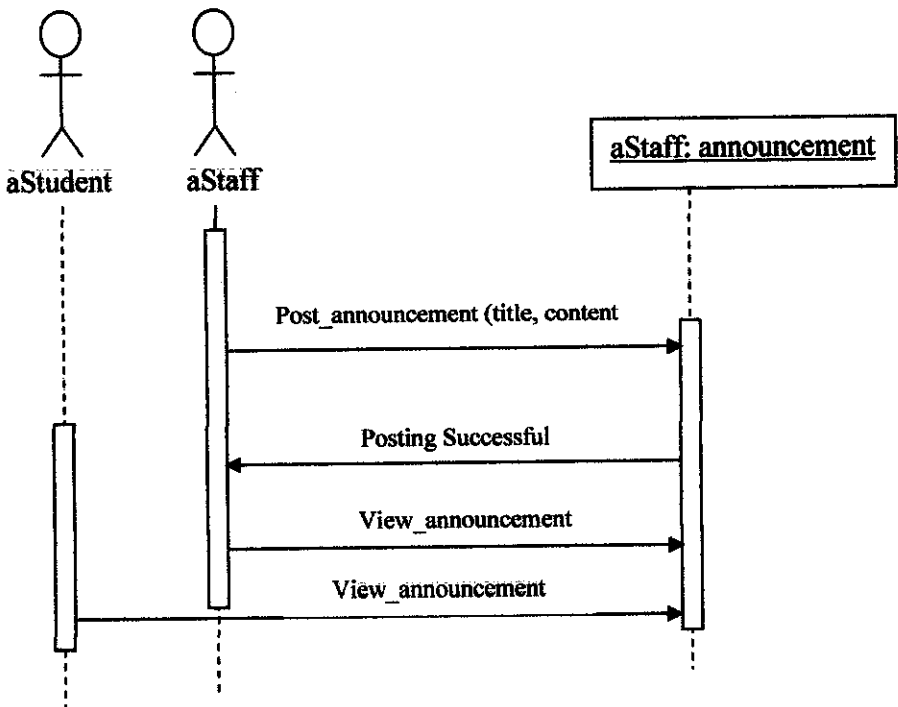
Sequence Diagram: Authentication and Authorization



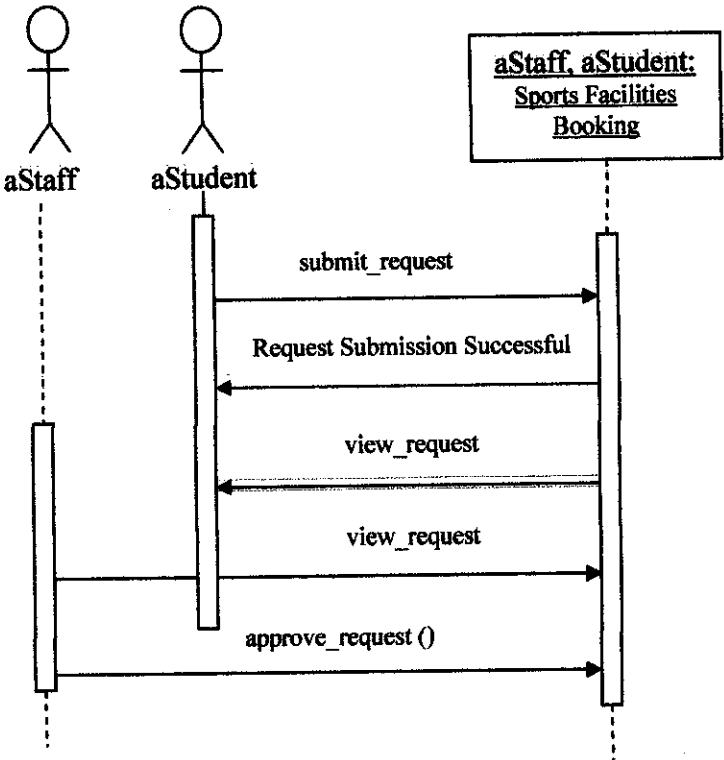
Sequence Diagram: Update and Retrieve Database



Sequence Diagram: Post Announcement



Sequence Diagram: Sports Facilities Booking



Sequence Diagram: Sports Equipment Requisition

